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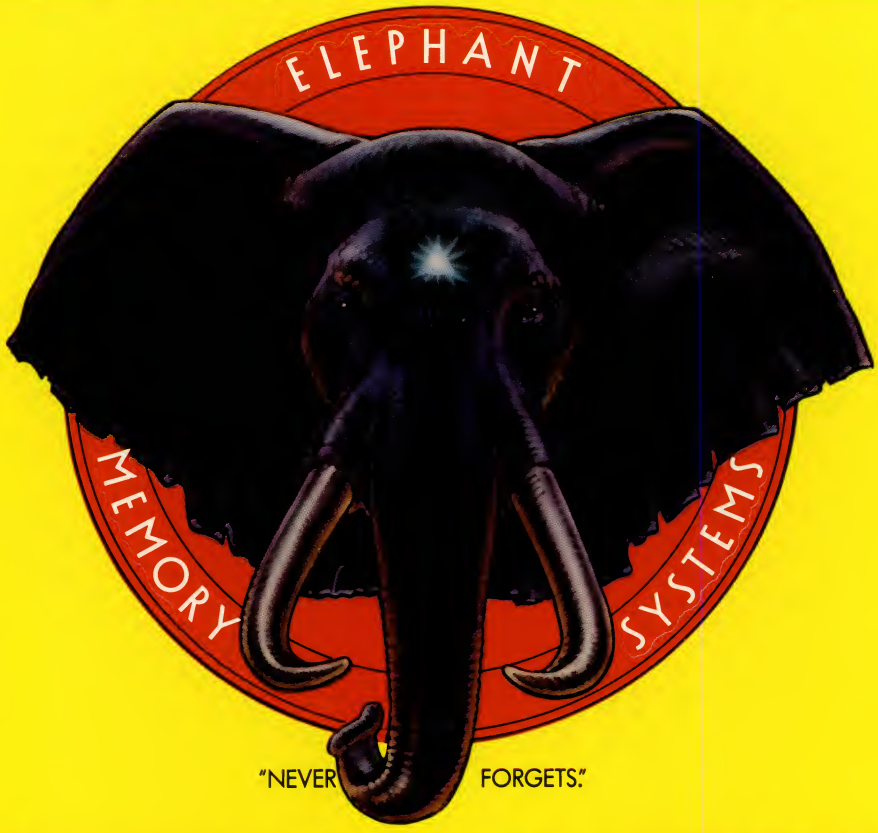

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TODAY

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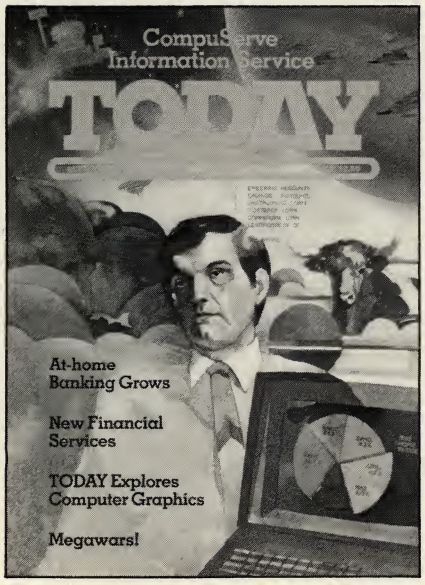

This issue of TODAY explores the many applications of computer graphics. One of the most significant areas of graphic application is to the financial world: Banking, home and business management and investments—three other areas also examined in this issue. *Cover illustration by King Associates.*

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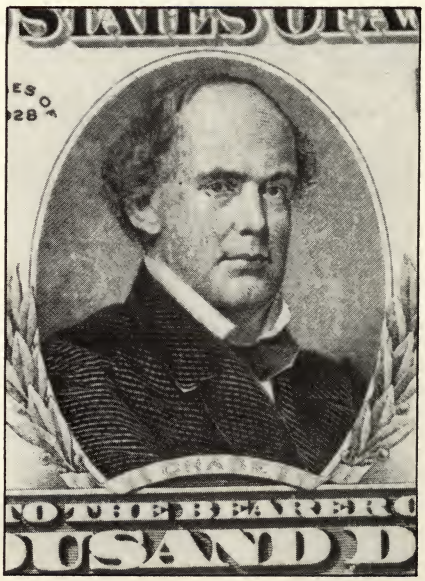

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Editorial Director
Richard A. Baker
Marketing/Advertising Director
Calvin F. Hamrick III
Editor
Douglas G. Branstetter
Art Director
Thom Misiak
Writers and Contributors
Carole Houze Gerber, Cathryn Conroy, Kathy Baird, Patricia Carro, Kathy Bissell James Davenport, Mary Vaughn
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Dear Reader,

Dear Reader,

Experimental videotex graphics today is a lot like the proverbial Christmas tie: The whole thing is beautifully packaged and exciting to unwrap. Gee, the colors sure are bright — real nice. But what will I do with it? The tie isn't practical, and even though it cost the well-meaning giver a substantial sum of money, it will end up in a dark corner of the closet with a dozen other Christmas ties.

Experimental videotex systems in the United States that have made intensive use of full-color, high resolution graphics are just that — experimental. The user value of such graphics is in question.

For example, let's say you key into the system and ask for a current airline flight schedule. Before you get the actual schedule, the system draws a pretty picture of an airplane.

It looks nice, but after a few times the novelty wears off and one begins to wonder about the value of it all. Good graphics are expensive and you are paying for that picture in one form or another. In addition, if you own a lower baud rate terminal the picture takes time — up to several minutes — to form. And as we all know, when you're on line, time is indeed money.

If you're lucky, you can set your terminal defaults to skip the picture and throw it into an electronic closet with all those other colorful pictures that you need about as much as you need another Christmas tie or vegetable dicer.

Back to square one.

Graphics on videotex are necessary, even critical to the growth of the medium. As hardware is improved and more people have the ability to display high quality graphics, more products will have to be in graphic form. But two considerations must be made in graphics applications to videotex:

First, personal computer hardware manufacturers will have to begin integrating technology into home computers that will allow the equipment to accept on-line, high resolution graphics. There are indications that this process has already begun with the development of decoders that allow microcomputers to display high quality graphics.

Eventually, the graphics quality must be comparable to television, movie and video game computer-generated imagery that the public has come to expect.

Secondly, a videotex information utility must exercise great care to make graphics a truly value-added feature and not just a gimmick. At present, CompuServe Information Service is examining finance, education, weather maps and games as potential areas of application.

In this issue, TODAY explores computer graphics technology: The fantasy, the experimental and the here-and-now. Some of the graphics technology examined in the following pages will likely set the standard for videotex in America in the years to come.

John E. Meier
Vice President and General Manager
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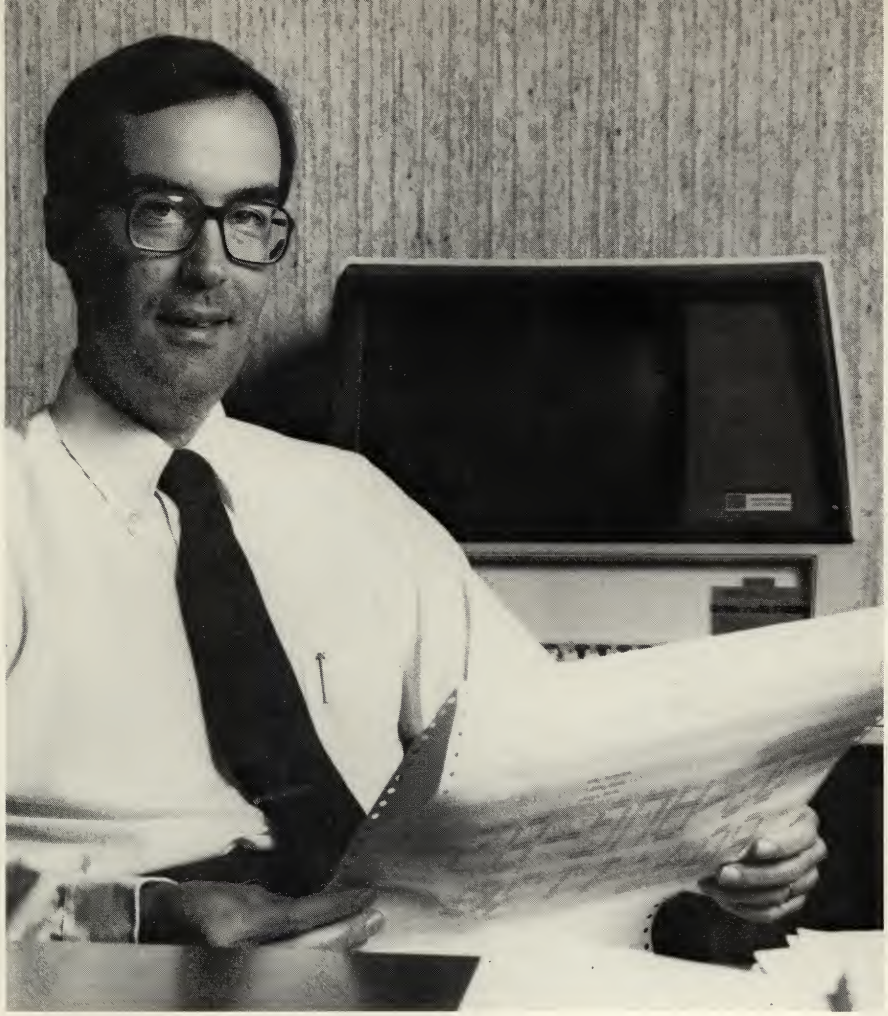

CompuServe's Alexander Trevor: "It's going to be essential that we have many, many more products in graphic form."

VIDEOTEX GRAPHICS: MORE THAN JUST ANOTHER PRETTY PICTURE

Everyone talks about the weather but nobody does anything about it. Well, at CompuServe, somebody is. No, the researchers working for Alexander Trevor, executive vice president of computer resources, aren't working to computerize the sunshine and store the rain on disks. They'd like to, of course, but reality dictates a more practical project.

What they are working on, among other things, is radar weather maps which show the weather on demand for any area of the country the user chooses. "They won't be as dramatic and detailed as those shown on television news because home computers don't have the resolution necessary," says Trevor. "They will be up-to-the-minute pages of data with a map on them. The initial weather product will cover the entire United States and users will be able to look at it in three sections — west, central and east. We haven't yet decided whether to narrow it down to smaller areas."

Other projects in the works are "top secret" and involve the development of multi-player games that make extensive use of animated graphics. Trevor reports that one, due out by the end of the year, is a board game while the other, which will be ready in the fall, is a sequel to Decwars. Five researchers are working with the new, interactive animated graphics projects and a number of others are working on other graphics products.

Trevor says that CompuServe's rationale behind development of its computer graphics is that the graphics must truly add to the process of communicating information rather than just serving a cosmetic purpose.

"One of the premises of videotex is the importance of graphics. If you look at what they've done in other countries — France, England and Canada, for example — you'll see they've put a lot of effort into creating pretty pages. The menus have a lot of colors and the text material has attractive borders. Users may like to look at this, but I'm not sure how much it enhances the value of what is presented. It takes longer and costs more. Where something has a clear value and graphics serve a purpose, we'll explore the applications."

Trevor cites Vidplot, a stock price and volume charting program available on the MicroQuote menu, as a practical use of computer graphics. Only recently made available to users, Vidplot can display 19 points graphically in months, days or weeks. Stock histories in the database go back to the mid-1970s and it takes users less than 30 seconds to obtain the information graphically. Trevor says that, for the occasional user, the cost of using Vidplot is lower than subscribing to a regular stock service.

"Any kind of printed material will never be as up-to-date as continually updated computerized information. For users who want to follow only a few stocks and check up on them periodically, Vidplot is an inexpensive way to keep updated."

As chief technical officer for CompuServe, Trevor is responsible for the operation of the computers, the network and the

continued on pg. 43

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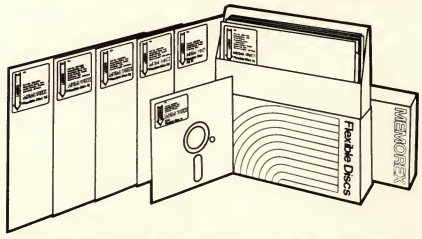

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COMPUTER GRAPHICS

Charles Csuri talks about computer generated imagery.

Professor Charles Csuri, a pioneer in the field of computer-generated imagery, has for 13 years received continuous research support from the National Science Foundation. He holds a joint appointment at Ohio State University in Art Education and Computer Science and is executive vice president of Cranston/Csuri Productions, a company which provides computer generated imagery in the areas of architecture, medicine, government research, simulation and training and special effects for films and television. Walt Disney Productions used Csuri's work in a television special promoting "Tron." Professor Csuri, a nationally-recognized expert on computer graphics, has appeared on a number of programs to discuss his work which was featured recently on Walter Cronkite's "CBS Universe." Professor Csuri agreed to talk with TODAY writer Carole Houze Gerber about his work and views on computer graphics.

TODAY: Computer graphics has gotten a lot of attention lately. Could you tell us a little about how it began and how it evolved?

Csuri: Like many things, it started out as a curiosity. Once people learned that the computer could be programmed to make lines or that you could control an oscilloscope with it, they quickly learned they could make drawings. Computer graphics was first used by General Motors in the automotive industry. The flight simulator technology then accelerated the development of computer graphics because of government funding which enabled researchers to better understand how to make high-quality computer pictures and in the case of the flight simulators, to be able to calculate them fast enough so it looks like a movie in real time. Of course, it was very expensive to develop this — but it was less expensive than the cost and risk of using real planes to teach pilots. The development of microcomputer technology has lowered the cost of computer graphics and has had a very profound effect on its growth.

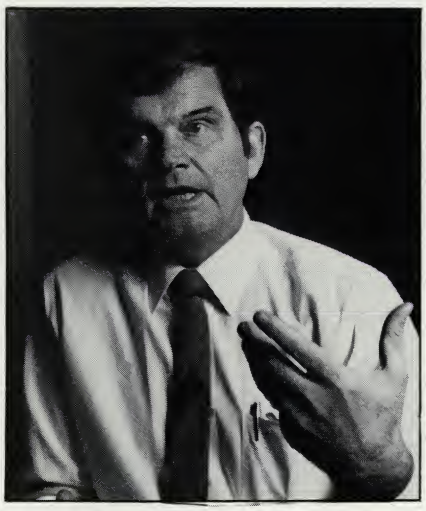
TODAY: What are some of the practical applications of computer graphics today?

Csuri: It's used in medical advertising, particularly in the area of surgical implants, in architecture, engineering, in the study of robotics to simulate moving structures, in the arts—it's used in many areas. And, of course, the field of animation in general is another application.

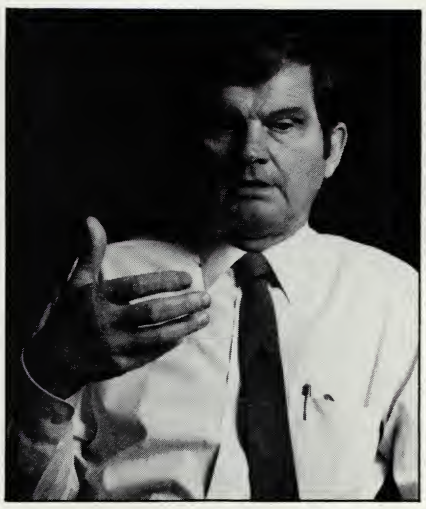
The commercial benefits of computer graphics are obvious. It recently took an architectural firm six months to make a scale model of a building — they had to make two or three versions of it. The cost was over $200,000. As an experiment, we took the architect's drawings and were able to create a database of the building. It took one person only two weeks to do this. Once we have that three-dimensional database, we can change viewpoints very rapidly. With computer graphics, we can do something the model maker can't do—animation. Viewers can fly around the building and actually go through the building. Buildings can be moved around in the environment to see how they'd best be positioned. A scale of varying distances can be made up to show different viewpoints, including aerial views. You can't really show these things with maps —I think that's very significant.

TODAY: How has the cost of computer graphics changed over the years?

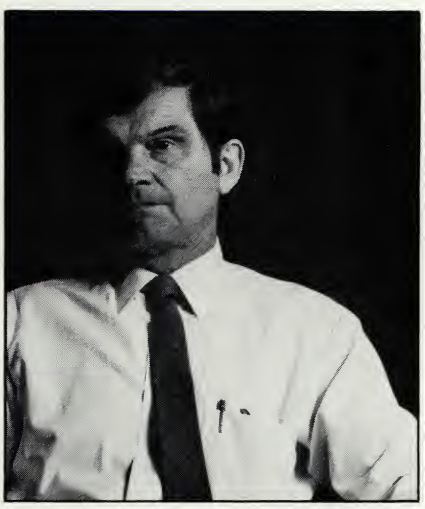
Csuri: When it first started out, computer graphics was such an exclusive kind of activity and the cost was great. For example, my IBM 1130 computer and display system cost $400,000. We now have a microcomputer and display system that is better and cost $20,000. The real problem is getting good computer graphics software packages so that the average



"The development of microcomputer technology has lowered the cost of computer graphics and has had a very profound effect on its growth."



"The kind of knowledge needed to produce high quality computer imagery is fairly sophisticated and there still aren't many people who are well trained."



Greg Miller

"But the more you experience you have with computer graphics, the more you realize it depends on the individual artist's vision, style and individuality."

person can do it. You need good routines to make data, to make objects, to make structures. You need good display algorithms — a program that can calculate a realistic viewpoint of a scene in three dimensions. The kind of knowledge needed to produce high-quality computer imagery is fairly sophisticated and there still aren't many people who are well-trained.

TODAY: How does your work differ from what others are doing?
Csuri: Here, we're talking about a three-dimensional coordinate system — xyz coordinates. We're using a graphical database. If I have the information that describes an object, I say to the computer " I want to look at it from this direction, or this one, or this one." When you're working with, for example, Telidon graphics, you're working with two dimensions. Telidon depends on an artist's ability to work with a paint routine to draw a building. If another viewpoint is desired, the information will have to be analyzed again and it will have to be redrawn. In three-dimensional graphics we talk about the ability to have lighting models, to have perspective, to be able to calculate the transparency of an object. It's much more sophisticated than two-dimensional graphics.

TODAY: How is computer graphics regarded by other scientists?
Csuri: They tend to see it as a tool. To some, it's a curiosity. Some of them see it as a luxury. Others kind of put it down — "Well, it's nice to have pretty pictures for your scientific data, but the real guts of the thing is back there in something else that the scientist is doing." Then you have other scientists who are very excited about it. They see it as an extension of their research — as absolutely essential in helping them solve certain problems because it helps them make decisions faster. For example, computer graphics can give them a better understanding of a mathematical model they've been developing.

TODAY: Do you see educating the public as part of what you do?
Csuri: Yes, and it's a major problem. As a result of research activity and because I've lived with the idea for a long time I can understand the commercial potential for computer graphics. On the other hand, the average person who does not have access to such knowledge can't see the value of it. Part of the process in talking with clients is helping them understand how the technology will be of value to them — how it can help in their decision-making and save them time and money. The problem I have with general public is technology in general. The more technical I become in trying to explain how things are done, the more people get bored. They turn off, they don't follow what I'm saying or they don't care. It's not a simple subject and therefore can't be simply explained.

TODAY: An artist who uses computer generated imagery in her work was recently quoted in a magazine article as saying "Computers extend everything art can be. You see totally new things and think new thoughts because you can do things impossible to do by hand." Please comment on her view.
Csuri: With computer graphics and animation you have a kind of euphoria and fall in love with technology and the potential of technology. Certain things are very easy — others are very difficult. And, initially, it all looks new. But the more experience you have with computer graphics, the more you realize it depends on the individual artist's vision, style and individuality. Computers are no different than any other art form in that individuality and talent are rare things.

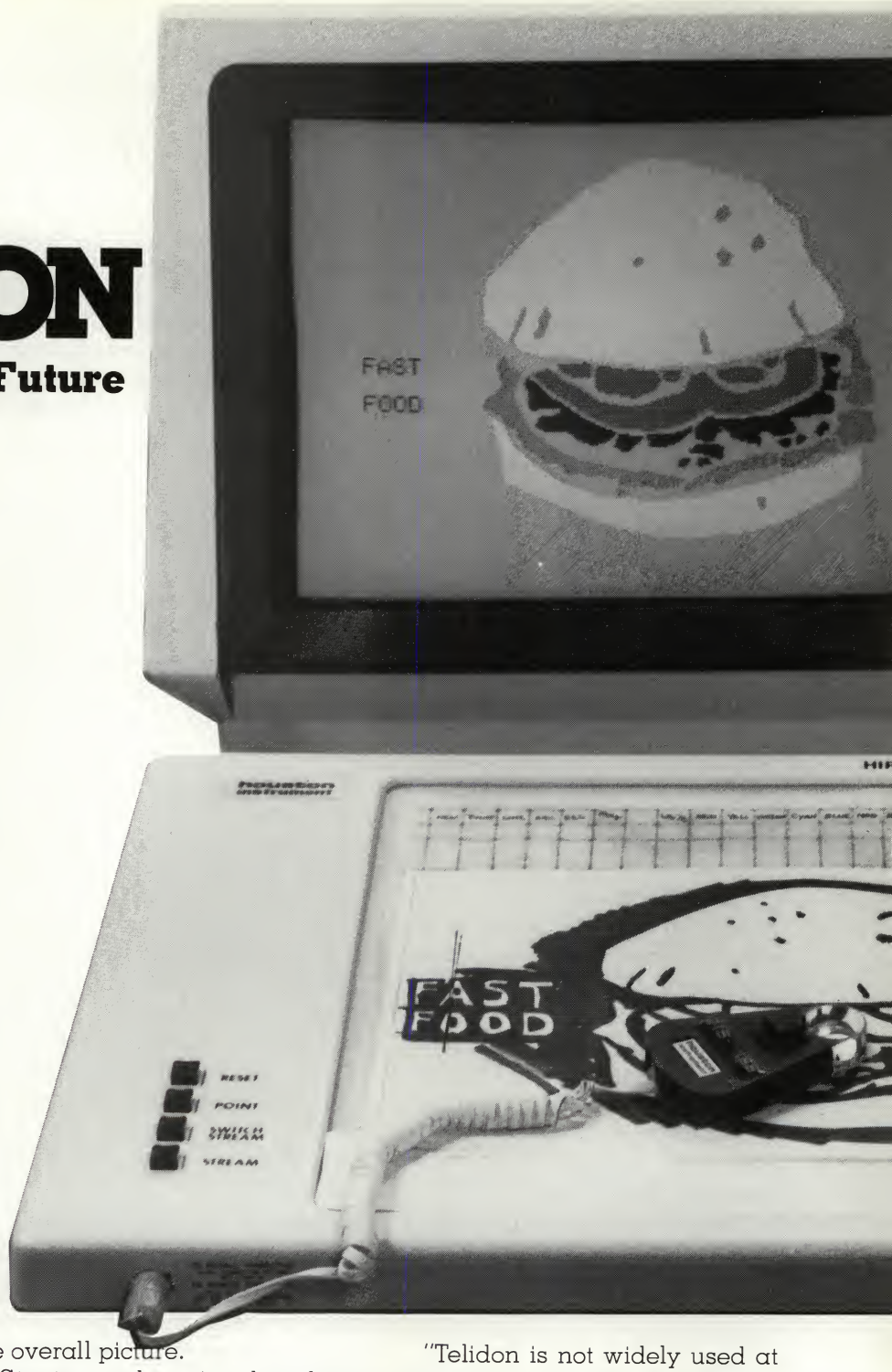
The other thing that does happen with computers that I think is a very important notion is that when you understand the logic of computers and programming, and you look at problem-solving in the way the computer scientist does and then apply it to the arts, you will look at creativity in somewhat of a different way. I might decide that there are certain decisions I want to make and others that I will turn over to the machine in the form of a program. I might structure the programming in such a way so that some playful kinds of things happen. Then, finally, as an artist I may decide that's [what has been produced by the program] interesting and play with that particular idea. So I may structure into it a lot of unpredictability. It's not that everything needs to be unpredictable. But artists, in their struggle to find a unique viewpoint, will try all sorts of ways of playing with reality until it feels right.

TODAY: So the computer, rather than controlling the artist or being a threat to creativity, is instead an extension of the human imagination?
Csuri: Absolutely!

by Carole Houze Gerber

TELIDON

Graphics of the Near Future



An architect meeting with her clients uses it to take them on a visual tour of a building that is still on the drawing boards.

A chemist uses it to create models for investigating the interaction of large molecules.

A stockbroker gets an almost instantaneous graph of the performance of various stocks on which to base his financial judgments.

These and many other examples in the fields of entertainment, medicine, business and education are all current uses of computer graphics—a science that has moved in the past few years from one of novelty to serious research.

According to Larry Sturtz, manager of CompuServe's Advanced Research Department, new developments in computer graphics will continue to occur rapidly. "All this work will eventually benefit home computer owners," he says. "Initially, the software will be made available so that personal computer owners can use BASIC or FORTRAN programs to generate graphics. Later, computer products will be released featuring Telidon graphics and requiring no technical knowledge."

In the forefront of computer graphics development is the Canadian Telidon Videotex system, a new terminal-independent method of creating high-resolution, multi-color graphic images through the use of Picture Description Instructions (PDI's). This PDI code describes images in terms of commands to draw basic graphic shapes such as lines, arcs and polygons at specified positions in the overall picture.

Sturtz, who is heading CompuServe's development of software to support the Presentation Level Protocol (PLP) which is a subset of the Telidon system, says that his group's work is a continually-evolving process.

"I think we're close to the point where software will be available for use by 'quasi-technical' people. We have one commercial customer in New York to whom we've supplied software for use with his own database," Sturtz explains.

"Telidon is not widely used at this point," he adds, "but we believe — after evaluating other systems—that it's the one that will become the North American videotex standard."

CompuServe is already testing a decoder manufactured by Norpak Ltd. that will allow Apple II computers to display Telidon Graphics. Apple officials hope to market the device this fall. It will sell for about $595.

CompuServe's Advanced Research team in March displayed

their work on Telidon graphics with a stock data demonstration at Interface '82, a trade show held in Dallas. An entirely computer-generated program, the software requires no artist or information-provider to draw pictures—a real plus in eventually making it available to the business person or home computer hobbyist.

What the system does require at this point, however, is extremely skilled people to work with the Telidon software/hardware combination during the graphics creation process. According to Charles Csuri, professor of Art Education and Computer Science at The Ohio State University, there is a "crying need" for software that will make computer graphics a viable option for wide business and home use.

"The hardware will continue to go down in price," says Csuri, who is nationally known for his pioneering efforts in computer art. "The real deterrent is software — packages must be generated to solve very specific problems generated by users' needs."

Sturtz agrees with Csuri's assessment of the state-of-the-art, adding that research on software for the Telidon graphics system and others is an ongoing priority at CompuServe.

"We're working now on one of several graphics projects, to develop a multi-user interactive game that can be used by home computer hobbyists," he says, adding that developments of this sort take months — even years — of research before they are ready for the public.

Some synthetic images produced by computer graphics cannot readily be distinguished from pictures of real scenes. In pilot training, computer graphics are already being used as a safe, efficient method to present students with ground-based experience that mimics precisely the view from a cockpit.

Use of computer graphics is also being experimented with as a means of eliminating the more tedious parts of cartoon animation. And instead of relying on artists to produce time-consuming and complicated charts, graphs and slides by hand, some businesses are relying on computer graphics to do the job.

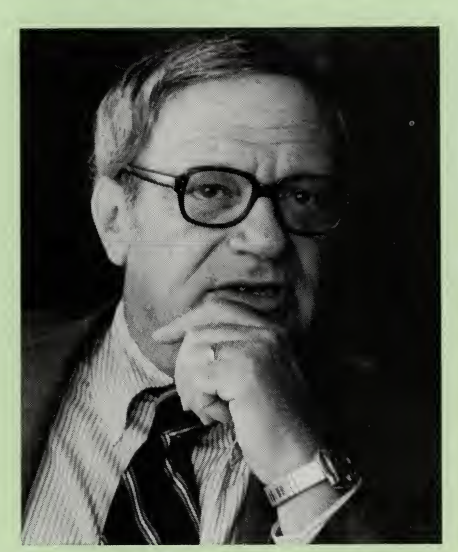
Sturtz and other researchers who spend long days in the lab working to make image generation procedures efficient agree that working to simplify these processes is one of the greatest challenges in computer graphics.

OSU's Csuri predicts wide use of computer graphics as it moves from research labs into homes, offices and schools.

"Computer graphics will alter how we work, learn and play," says Csuri. "Its impact on all our futures will be enormous."

by Carole Houze Gerber

FRANK MANKIEWICZ



NPR's Mankiewicz: Taking a hard look at funding

Since 1977 Frank Mankiewicz has devoted his energies to National Public Radio. Most recently he has had to take a hard look at the growing needs of NPR for private funding.

To keep the nature of NPR noncommercial, Mankiewicz and his staffers have come up with interesting solutions. "One way we do that," Mankiewicz says, "is in seeking contributions in our two funds, not for specific programs. We have a News Fund and a Performance Fund. Contributions are not hooked to a general program."

For larger contributors, those who can add $250,000 a year to the NPR coffers, there are 12 credits a week on either the news programs or the performance programs. Each program is tagged with a listing of three contributors, the names of which are rotated throughout either the news or performance programming.

Mankiewicz's concerns about programming control stem from a career in journalism, law, public service and politics. Born in 1924, he received an M.S. in 1948 from Columbia and L.L.B. in 1955 from the University of California at Berkeley. He was in private practice in Beverly Hills when the John F. Kennedy's phrase " ... ask not what your country can do for you; ask what you can do for your country" called him to join the Peace Corps. He became Director of the Peace Corps in Lima, Peru. By 1964 he was Regional Director of the Latin American Operation of the Peace Corps.

In 1966 Mankiewicz was chosen as press secretary for Senator Robert Kennedy, a position often mentioned in articles and biographical sketches. After Kennedy's assassination in 1963, Mankiewicz turned to writing, working both on syndicated columns and as a television news commentator. In 1971 he was appointed political director for Senator George McGovern's presidential campaign.

Following McGovern's defeat in the 1972 presidential election, Mankiewicz worked on several books and articles. Some of the most prominent include: *Perfectly Clear; Nixon from Whittier to Watergate* (1973), *U.S. v. Richard M. Nixon: The Final Crisis* (1974), *With Fidel: A Portrait of Castro And Cuba* (1975), and *Remote Control: Television And Manipulation of American Life* (1977). Mankiewicz was a columnist for *The Washington Post* from 1976 until 1977 when the infant National Public Radio merged with the Association of Public Radio Stations and became the National Public Radio organization we know today. Mankiewicz was the first president of the new organization. Recently he and staffers celebrated his fifth anniversary with NPR.

NPR OFFERS ELECTRONIC CASSETTE GAZETTE

If you like to think in terms of global problems and cultural phenomena instead of department store sales or if you're more interested in the problems in Poland than the Top 40, you're probably already a fan of National Public Radio.

Now you can have access to more information on NPR programming as well as an up-to-date listing of program recordings on cassette with Cassette Gazette.

Cassette Gazette, a new monthly newletter for CompuServe users, features a synopsis of NPR programs available on cassette, a listing of all NPR programs made into cassette form since the most recent catalog and highlights of soon-to-be-broadcast programs that will be available on cassette form. In addition, there is a feature story of interest to NPR listeners. Stories like "Listening" by Dorothy Louise, "NPR Journal Explores The Secret of Long Marriages," Street Performers, Main Street Musicians," and more.

Cassettes available to CompuServe users are from the National Public Radio archives, a collection of public service programs that spans the 12 year history of public radio broadcasting in the U.S. Some of the older programs reflect the then-current issues, just as recent NPR features have done with programs on Poland or Jonestown. Others reflect social issues like juvenile crime. Still others feature economic topics like "Reaganomics Made Easy" or "Budget Deficits."

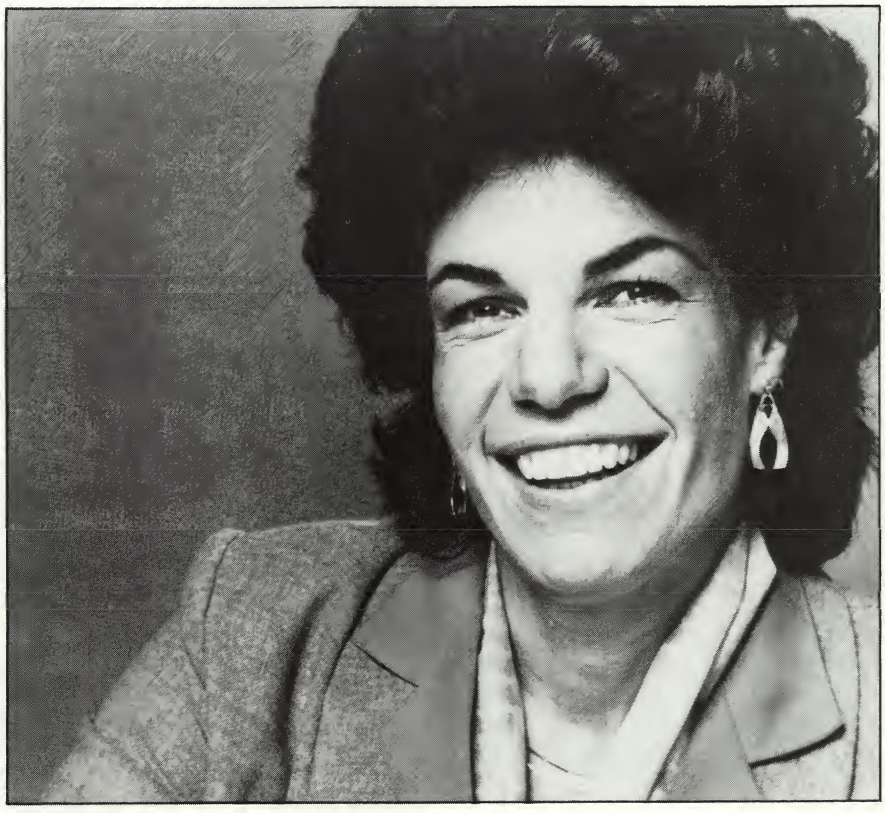
"They are really marvelous programs ... an asset for rebroadcast," says Frank Mankiewicz, president of National Public Radio since 1977. But aside from the opportunity to share the information that is available in the archives, cassettes may be one way NPR can keep the wolf from the door in times of budget cutbacks that threaten to withdraw necessary funding for non-commercial public radio and television in our country. "We do not think of cassette sales as a savior, but think it will be a steady, modest help to revenue," Mankiewicz judges.

Any additional funding brought in by cassette sales of programs will go to boost programming or replace funds cut by the government, according to people at NPR. This is only the second year for cassette sales. Most earlier sales have been made to colleges, libraries and other institutions.

The current assortment of programs offered via cassette includes NPR produced news, public service, documentary, docudrama and even entertainment programs. Mankiewicz stresses entertainment does not mean "giddy, lightheaded" material, but is "entertaining like Word Jazz." Word Jazz features sometimes humorous, sometimes serious, but always inventive programming with a mixture of sounds, music, poetry and droll dialogue from Ken Nordine.

Because the rights issue is cloudy, there are a limited number of concert programs available. The area is under heavy discussion at this time. Still listeners can select several popular musical entries such as "Joe Frank in Concert" and "Music in A New World."

Over 500 programs are now available via Cassette Gazette.



Barbara Bordnick

Susan Stamberg, co-host of NPR's "All Things Considered": Award-winning programs can be ordered electronically

Once in your home or used in the classroom, they can be enjoyed time and time again. "Audio Arcade," which capitalizes on the popularity of video games, presents a variety of games for radio. It is quite popular as is "Training The Brain," a discussion of the functioning of the right and left sides of the brain. "U.S. Immigration Policy" has been requested lately, as have "Getting Into College," One Room Schools," and "Auto Industry."

"Our continuing goal," says Mankiewicz, "is to provide expanded distribution for audio programs of the highest quality, both for educational use and for personal enrichment. We are delighted to be a part of the CompuServe Information Service. It is a quantum leap for us."

Each issue of Cassette Gazette will add more programs, indexing cumulatively backward to the most recent catalog. The catalog, which contains programs available on cassette and descriptions of each, is free for the asking. Write to:

National Public Radio
Publications Department
2025 M Street NW
Washington, D.C. 20036

Individual cassette orders can be made directly via computer or via toll free number (and we all know which is faster—and where there's no busy signal): 1-800-253-0808. The cost for cassettes ranges from $8.00 for 30 minute programs to $11.00 for 90 minute programs. Sometimes, in the case of a series, cassettes do not become available until the series has aired completely.

by Kathy Bissell

2001 TROMBONES

A FAMILY OF THE FUTURE PUTS COMPUTER GRAPHICS TO WORK

"Ladies and gentlemen... the Stellar High School Marching Band!"

Seventy-two band members strut proudly onto the football field, playing instruments ranging from the old-fashioned—and still quite cumbersome—tuba to the new trumboline. The music? It's the new Stellar High Victory March composed by the band conductor, Mr. John Philip Sousa VII. Of course, he had a little help from his computer...

The Stellar High Victory March reached its final composition stage during a typical day in the Sousa household. John Philip's 9–10:30 a.m. "on time" at the family computer terminal yielded the Victory March as the conductor made use of the computer's amazing graphic capabilities.

By connecting his electronic synthesizer to the library of visual images contained in the computer, John Philip can "write" his music on the screen at the same time he plays the actual notes. Starting with a basic staff, the computer fills in appropriate notes, bars, pauses and the like ... whatever the composer wishes. Once this "sheet music" is complete, John Philip begins to determine the band's marching formation.

Seventy-two figures appear on the screen, representing band members. Percussion section ... wind instruments ... horn section ... John Philip takes his light pen and touches it to various figures on the screen, moving them to the desired positions. Within minutes, he has come up with a snappy formation, which he programs into the computer's memory bank.

Illustrated Alaskan Moose

"Music, maestro!" He commands the computer. John Philip views the computerized culmination of his efforts. The figures on screen move smartly in formation to the strains of the Victory March.

"If only I could get my students to learn this much this quickly," he remarks to his wife, Gaetine.

Gae Sousa smiles. Her husband would spend all his free time composing marches and formations on the computer if she didn't occasionally remind him of other chores to be done: excess life support materials to be taken to the community disposal system; cleansing the family's transport vehicles; all the mundane tasks that face every family unit in the 21st century.

Gae Sousa replaces her husband at the terminal. Accompanying her are six pre-schoolers, who attend CosmicCare, Gae's in-home school operated as one of 3,000 such "cottage industries" in the work-oriented community.

"Class, today is graphic expression day! It's what was known in the olden days of the 20th Century as Arts and Crafts." Giggles from the audience of five-year-olds.

"Susie, you're first today. Touch your light brush to the terminal screen and see what you can create!" Susie draws, gradually becoming bolder and more creative as the computer prompts her with pictures of objects she has never seen before — an automobile, for instance. Gae praises Susie's work; it is, in fact, on the same level as that achieved by children twice her age in the 20th century. The computer's graphics capability has enhanced artistic creativity in the 21st century. After Susie, each pre-schooler takes a turn. Printouts are furnished to each student to take home and hang on the refrigerator door.

Afternoons at the computer terminal are reserved for the Sousa children's homework. Jerry, the fifth grader, studies U.S. geography and history by drawing on the resources of the graphic library. States take shape on the screen in the order in which they were first formed. The Civil War era lives again; as Jerry watches, those Southern states that seceded from the Union are depicted graphically in Confederate gray, while Union states are depicted in blue. Battle sites appear on screen, along with pertinent facts.

Lia, the seventh grader, focuses on world history, and how the past affects those countries' current exports. The changing faces of Europe, Asia and Africa fascinate Lia, as the computer's graphics capability takes her through a "time tunnel," moving from prehistoric times into the 21st century. Students in Lia's class at school agree that "seeing" history take place makes it much easier to comprehend.

Homework is over and the children break for dinner. Afterward, with the children at the neighborhood recreation chamber, the elder Sousas return eagerly to the terminal. They are planning to build their dream shelter, with the assistance of the computer.

By programming important data such as family income, size and amenities desired into the computer's Shelter Center Graphics Bank, the Sousas receive in return a variety of shelter plans to choose from. The Sousas have decided on Solar Ranch #213, with a few modifications. Two feet are added, graphically, onto the primary sleeping room. The modified plan is displayed on the screen, as the additional cost is added to the price of the shelter, displayed in one corner of the screen.

The Sousas decide to add a back door, and to rearrange the cooking

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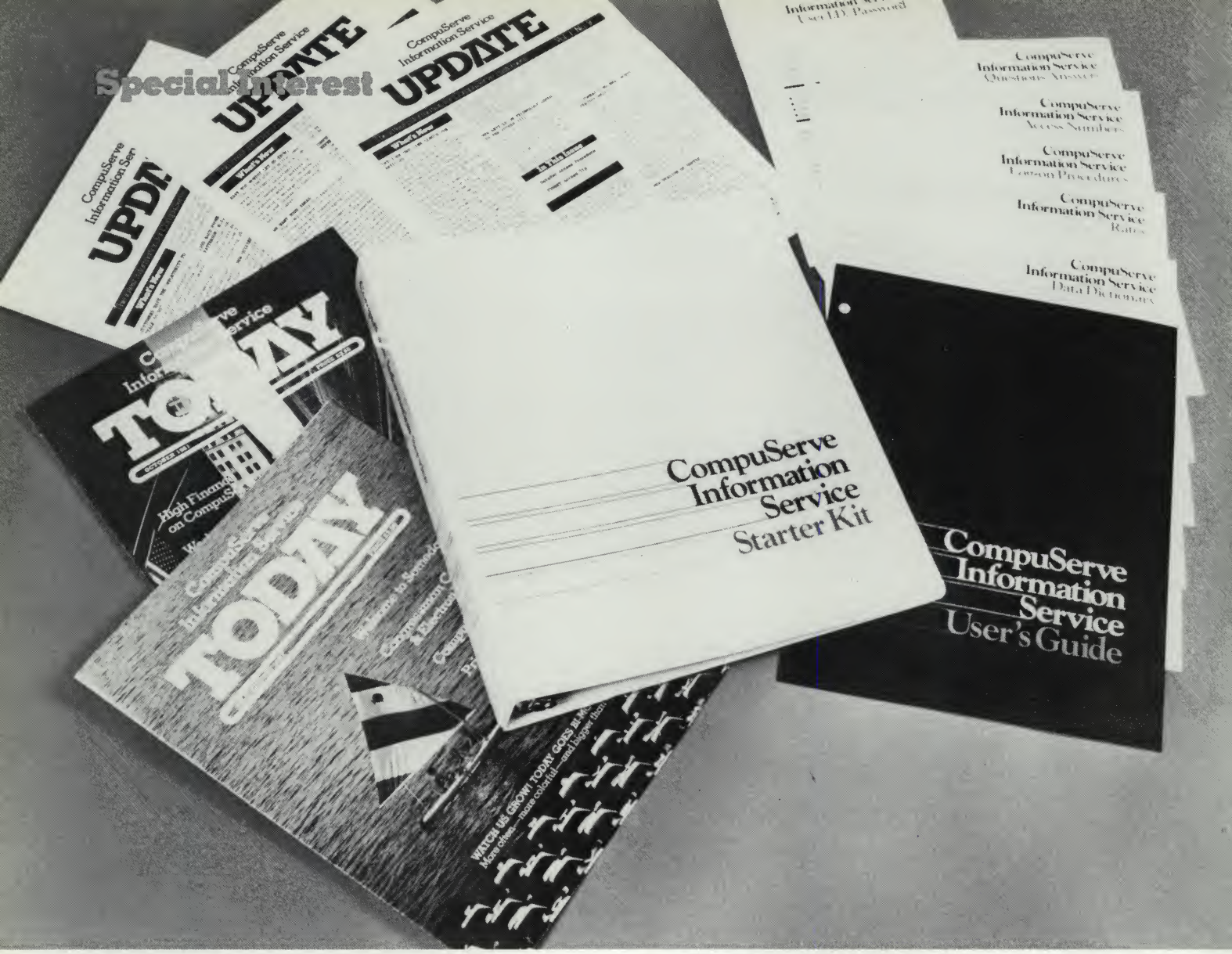

CIS TO OFFER NEW RETAIL PACKAGE

CompuServe Information Service (CIS) plans to offer a new retail package that will soon be available through a wider network of retail outlets in North America.

In addition to the more than 5,000 Radio Shack stores where CIS can already be sold and demonstrated, CompuServe is working with a number of independent retail outlets and chain stores. The goal is for CIS to be sold everywhere that personal computers and computer games are sold.

For some time, retailers around the country have been asking for the opportunity to sell CIS, and CompuServe is responding to that demand with a new CIS Starter Kit.

The Starter Kit includes a custom-designed binder that holds the CIS User's Guide and other printed materials.

In simplified language, the improved guide provides all the information required to access and use CIS. The example-filled guide will serve as the base instructional unit and CIS will offer additional supplements for users as new features are added to the service.

In addition, the kit presents CIS customers with a pre-validated user ID number and a password — all packaged in a special security envelope. The ID number allows purchasers five free hours of connect time to explore CIS and provides the opportunity to subscribe at no additional charge.

To further clarify computer terminology, a data dictionary with definitions of technical terms is also included in the Starter Kit. Along with the dictionary, there is a list of current telephone numbers of CIS network connections across the country and a list of the most commonly-asked questions and answers about CIS.

Subscribers will also receive Update, a monthly newsletter highlighting new services and information about CIS. In addition, subscribers will receive a free introductory subscription to TODAY magazine.

The entire Starter Kit — a total value of more than $50 — will carry a suggested retail price of $39.95.

by Peggy Garvey

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INTEREST GROWS IN VIDEOTEX BANKING

Restaurant owner John Greene dialed the bank's number, hoping to find his account manager back from lunch. "Joe, Hi, John here. I'd like you to handle a few questions and transactions for me before the bank closes. Find out the current balance in the restaurant account and whether or not my latest deposit has been credited. Also, I want to know if six checks I wrote three days ago have cleared, because I need to wire some money to the coast if they haven't. Oh, and while you're at it could you take a look at my personal savings account balance and transfer $2,000.00 into savings certificates? Thanks, call me back when you get it all done."

The days when the busy executive, small businessman or household money manager must call or stop into the bank to conduct his business are numbered now that CompuServe Information Service (CIS) subscribers can utilize their home computers for banking.

Two years ago, Bank-at-Home (TM), a joint venture of Financial Interstate Service, Inc., Radio Shack and CompuServe, was introduced to customers of United American Bank in Knoxville, Tenn. and later in Memphis. Bank-at-Home is growing with the introduction of this service to customers of the Shawmut Bank of Boston.

Now, the Huntington National Bank of Columbus will be offering its version of home banking services.

Already a leader in Ohio in offering innovative banking procedures to customers, Huntington was the first bank in the state to offer bill-paying by telephone. Now Huntington is moving forward again, giving its customers the opportunity to conduct banking business on their personal computers.

CIS subscribers who are Huntington customers can access Huntington Bank at-home banking services through main menu category Home Services to perform a host of interactive banking activities.

Inquiries, current to the previous night's posting, can be made on all types of accounts, including checking, savings, installment loan accounts, mortgages and commercial loan accounts. An actual listing of checks and all other transactions will be posted.

All loan balances, monthly payments and interest rates are available for customer review at the touch of a button. For those interested in investment information, up-to-date rates are available for primes, certificates of deposit, money markets, IRAs and Keoughs, repurchase agreements, All-Savers and U.S. Treasury bills.

Customers can conveniently pay their bills by computer. For example, a customer can instruct Huntington to pay the electric bill on the fifth, the gas bill on the 10th, the mortgage on the 20th, the bank card on the 25th and the department store on the 28th. The bank can also be instructed to pay bills on a recurring basis, so, for instance, the mortgage would automatically be paid for the next 15 years.

In addition, Huntington news and marketing information is offered and updated daily, giving prospective customers a demonstration of how the CIS system works and giving them a chance to sign up for an account through electronic mail right from their home or business.

Future plans for at-home banking services will change the entire nature of business and personal banking. Corporate customers will be able to update their files daily for wire transfers, receive an immediate lockbox service for fast and accurate deposit of funds and take advantage of cash management services that include automatic funds investment. To do their banking, customers will no longer have to rely on a phone that may be busy or an account manager that may be out of the office.

In the future, the at-home banker, taking care of the household and personal accounts, will receive daily investment advice with the ability to transfer funds to various money market accounts. He can also take advantage of a

Greg Miller

stock brokerage service, buying and selling stocks through Huntington, as well as apply for a loan — all from the personal computer.

Using the CompuServe system for Huntington banking services is safe with two levels of security guarding access to the system. First, a user ID/password is needed to log on to the computer; secondly, a special bank password is required to gain access to an individual's account.

Huntington officials believe at-home bankers will include the owners of small businesses who would like to do their personal banking in the same way they do their corporate banking; individuals in an upper income bracket who want up-to-date information on their funds for investment purposes; and computer hobbyists who enjoy taking advantage of the new technology.

All users of the system will discover the immediate advantage of being able to know daily exactly how much money is in the bank, allowing access to sophisticated financial planning.

Huntington's Senior Vice President Donald E. Walters: An innovative bank on the move again.

Although bank officials expect only about 100 small businesses and 200 individuals to utilize at-home banking by this fall, they do expect a steady increase in the number of users. In a year and a half to two years it is hoped that several thousand Ohioans will conduct their banking business through their home computers.

An account officer will be available for all customers during regular banking hours, but those using the computer will find less need for personal contact on a daily basis. In addition, banking can be conducted during nontraditional banking hours — in the evening and on weekends.

The first bank in the country to offer at-home banking services is United American Bank in Knoxville, with the assistance of Financial Interstate Services, Inc., Radio Shack and CompuServe. Bank-at-Home went on line in December, 1980 and today offers customers current information on checking and savings accounts, and a

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LIQUID GREEN

AN ON-LINE MONEY TRUST FUND

In the days before fluctuating interest rates, it was usually sufficient to receive financial information at a rather leisurely pace. In today's rapidly changing economic environment, however, investors want to know what's happening to their money on a daily basis. With a money fund called Liquid Green, investors who use the CompuServe Information Service (CIS) have up-to-the-minute knowledge of their money fund investment.

Liquid Green is one of six mutual funds managed by Unified Management Corp., a publicly-owned investment advisory firm with offices in Indianapolis and Detroit. Nick Kaiser, president of the company, explains that the firm (via Liquid Green) buys interests in short-term, high-yield securities. Every day, a dividend to investors in the money fund is declared.

Kaiser sees the Liquid Green electronic service as a boon to the active investor who wants to know his or her money fund balance on an updated basis. Because CIS is available during evening and weekend hours, Kaiser points out that investors have access to information during non-office hours that are most convenient to them.

Each day on CIS, investors can see Liquid Green's current yield, total assets, and a list of short-term investments that may well total 100 different items. They might see, for instance, that a purchase of $2 million in CDs has recently been made from a certain bank in Atlanta, good for 60 days.

Liquid Green's inquiry program allows investors to find out the balance on their money fund account. The balance is updated once a day. The information remains confidential, as users are required to use a special identification number for access.

Investors can also find out their year-to-date income; last purchase transaction, date and amount; and their last redemption transaction, date and amount. CIS customers can learn immediately, for example, if a Liquid Green money fund check has been cleared and the amount deducted from their Liquid Green share balance.

Kaiser points out that Liquid Green is unique among money funds in its acceptance of electronic transactions for deposits and withdrawals. Money is transferred through Automated Clearing House (ACH), a form of electronic funds transfer. ACH allows Liquid Green investors to electronically transfer funds to and from their local checking accounts.

The minimum amount required to open a Liquid Green money fund account is $1,000. While CIS users must make their initial purchase application directly to Unified Management, all successive transactions can be carried out on CIS.

Although non-CIS investors receive detailed information about Liquid Green portfolio investments, Kaiser emphasizes that this information is mailed to investors only twice a year. CompuServe Information Service users, on the other hand, are the only Liquid Green investors who are able to get the fund's portfolio on a current basis. A typical day's information, for example, might reveal that the Liquid Green earned 14.35% in compounded yield for the day, a 15.16% YTD compounded yield, and that the fund has total current assets of $140,447,180.

Kaiser notes that, in addition to the active individual investor, Liquid Green on CompuServe is ideal for "the small corporate investor who might move money frequently, and who wants to know the status of his investment at the end of every month, for instance."

With Liquid Green, CompuServe expands its financial services to serve those individuals whose need to know often exceeds their ability to gather information in a timely, effective manner. Today, a money fund account is just a touch away.

by Patricia H. Carro

VALUE LINE: A BOON TO BIG PORTFOLIO MANAGERS

Busy investment portfolio managers will probably never lose sight of the importance of the "big board" in advising their clients. But a small keyboard — one attached to a computer terminal—will make their jobs easier by providing access to comprehensive information on approximately 1700 major companies contained in the Value Line Data Base-II.

Available to CompuServe Information Service (CIS) subscribers through Value Line Data Service in New York City, the database contains detailed historical annual income statements, balance sheets and sources and uses of funds for industrial, transportation, utility, retail, bank, savings and loan and insurance companies. It also includes industry composites, quarterly results, company earnings estimates and target price forecasts as well as sales and earnings by business line, precomputed commonly used ratios and per share figures—in all more than 400 different items about each company's annual performance.

Available in print since 1936 through the Value Line Investment Survey, a weekly investment advisory publication, the information in the Value Line Data Base-II contains many more items about each company. It does not, however, contain certain special Investment Survey items such as timeliness rank, safety or industry rank. Data Base-II information is targeted to the professional investment portfolio manager responsible for at least $100 million-plus according to Bill Close, director of Value Line Data Services.

There are two forms of access to the ValueLine Data Base-II: VL Rep and VL Data. The Rep (for report) program can be used to obtain compact income statements, balance sheets, sources and uses of funds, key ratios and forecasts for industrial companies in the data base. According to Dave Pohlmann, CompuServe's manager of financial products, VL Rep serves a very specific purpose.

"The whole idea behind VL Rep was to make the information available in a quick, usable, but not tremendously detailed format," he explains. "The VL Rep doesn't give all the details that an investment banker would want to see, but it does give enough details about recent financial information on a company for reasoned investment decisions to be made."

Whereas VL Rep produces four different reports, VL Data is intended as an extraction program for the database, with the express intent that users will transfer the information to their personal computers. It can be used to obtain any and all of the database items for one or more companies for one or more years.

The information on the Value Line-II Data Base is collected by Value Line's experienced, professional staff. Says Bill Close: "This is not a clerical effort. We have a research staff of 90, including securities analysts, statisticians, economists, librarians and computer systems personnel. Our parent company, Arnold Bernhard & Company, manages mutual funds and pension funds. The Value Line Investment Survey, which has been published for nearly half a century, complements the use of the data base and vice versa.

"The computer allows the finance professional to develop his own strategies and models to analyze the information to fit his particular investment requirements," Close adds.

The Value Line Data Base-II is updated at least 30 times annually, including frequent updates during the early part of the year when much financial information becomes available. In addition, CompuServe provides current stock market information daily. Data is maintained from 1969 forward on all companies where this is available.

Value Line Data Base-II is accessed through MicroQuote and is a premium service charging a small additional fee beyond the hourly rate for usage. The annual subscription fee for Data Base-II is $5,500. A three-month fee for new users costs $1,500. A non-subscriber user fee of 8¢ per item retrieved is also available. VL Rep data can be retrieved for fixed amounts that average out to much less than 8¢ per item.

For more information on the Value Line Data Base-II, contact Andy Balogh, VLDB-II product specialist at (614) 457-8600.

by Carole Houze Gerber

VALUE LINE SUMMARY:

- Annual company and industrial financial data
- Quarterly company data beginning with 1969.
- Company estimates, projections and price target forecasts
- Company monthly and quarterly pricing history beginning in 1969
- All data adjustments for stock splits and stock dividends

SCORE FINANCIAL GOALS WITH IDS PLAN

If you've ever dreamed of taking a trip to Europe, sending your children to college, or owning an expensive sports car, CompuServe's IDS Financial Planning service will help you make those dreams reality.

The service is provided by Investors Diversified Services, (IDS) Inc., an 88-year-old nationwide firm which offers 40 different financial products and services.

The IDS Financial Planning service helps CompuServe Information Service subscribers assess and prioritize their personal financial goals, take stock of their present fiscal position, then determine which investments and savings plans will best help them reach their goals.

"It provides an opportunity for consumers to become more comfortable and sophisticated by setting their financial roadmap and achieving their financial goals," said James B. Solberg, manager for electronic marketing projects at IDS.

Depending on personal situation, a subscriber may benefit more from a money market fund, an insurance policy, or a wide assortment of other investments and savings plans.

Topics presently offered on the service include: Family Budget, Insurance and Goals for Managing Risks. Via CompuServe, users can receive detailed information on any of these topics, then by supplying personal information, can determine the best application of a particular financial service.

For instance, subscribers selecting the Family Budget program receive information about the need for a budget, alternative budget designs, and methods for organizing and keeping records. After developing and implementing their own budgets, interested users can review the results and assess spending patterns.

"We think that for the subscribers to CompuServe, there's a fun part to this. We all have financial goals, needs and problems," Solberg said.

Personal financial questions which arise at any time may be answered by CompuServe EMAIL, or a subscriber may instead request a visit or a phone call from an IDS sales representative who can provide further information. A sales representative will never contact a subscriber, however, unless the subscriber has made such a request.

The IDS service presently provides constant and unchanging information. Eventually, a changing "newsletter" section will be added to update subscribers on financial news such as weekly interest rates.

Greg Miller

In the future, IDS plans to add a unit on Mutual Funds to the service. Other future topics will be determined according to subscribers' interest.

"A lot of our thinking on where we go in the long term will be responsive to what people want," Solberg explained. "We see that this could go a lot of different ways," he said. "We're trying to find out what people are interested in doing by computer."

After an initial trial period of six months, the service will be re-evaluated.

IDS's participation in this project was triggered by the growing importance of new technology in the financial community. In April of 1981, IDS began an Electronic Marketing Division within its Marketing Planning and Research Department. This division is exploring how computers and other channels such as cable TV can be used to provide personal financial services.

"There is an interest in financial education and financial planning," Solberg said. "We believe that home terminals will be opening a new means of communication with the consumer. We are exploring whether financial planning and the purchase of financial products will occur this way," he explained.

Although no financial products are presently sold by computer, this is one direction that may be explored in the future if there is sufficient subscriber interest.

Solberg predicts the Financial Planning Service will interest two types of people: Those who will make their own purchase decisions based on the information provided and those who will learn enough about personal financial planning through the service to feel comfortable that they are asking the proper questions when they talk to a sales representative.

Among those who will one day make electronic purchases, he feels, are people who presently refuse to talk to a sales representative. These people presently form a market which is not being reached at all, Solberg explained, since sales representatives are now the only channel through which purchases are made.

Even if there is great interest in the purchase of financial services by computer, however, Solberg says the personal sales representative will always be needed. Some people who refuse to use a computer will continue to make their purchases through sales people exclusively, while many others may prefer to use a combination of electronic technology and personal contact to make their decisions and purchases, he predicted.

by Kathy Baird

FINANCIAL PRODUCTS ON CIS

ARCHER COMMODITIES The Archer Commodities Reports contain information on all aspects of commodities trading. Archer Commodities supplies expertise and personal attention in providing their Commodity Calendar, General Market Commentary and Specific Market Reports.

ASSETS/LIABILITIES PROGRAM The Assets/Liabilities program asks you to input answers to questions regarding your personal assets and debts, records this data and then determines your net worth.

BUSINESS INFORMATION WIRE The Business Information Wire (BIW) is a service of the Canadian Press (CP). The CP is a news-gathering cooperative owned by more than 110 daily Canadian newspapers which report stories gathered by reporters and editors across Canada and from correspondents abroad.

COMMODITY NEWS SERVICE (CNS) The Commodity News Services, Inc. (CNS), a subsidiary of Knight-Ridder Newspapers, Inc., began reporting news and prices on pork bellies, wheat, gold, oil and other commodities in 1953. CNS provides continously updated news, prices and infromation on how the weather is affecting the commodities market.

FINTOL FINTOL is a set of computerized financial tools. If you're considering buying a home, for instance, you can figure out how much your monthly payment would be if you had a $60,000 loan with 15% interest rate. FINTOL can also display compound interest calculations, the sum of a periodic investment, sinking fund investment, and present value. FINTOL can also provide a depreciation analysis or compound growth rate calculations.

INVESTMENT NEWS AND VIEWS The Investment News and Views is a compendium of advice and information about investment and trading opportunities, particularly, but not always, in the stock market. The service is selected newsletters written by Eric Balkan.

INVESTOR PROTECTION REPORT This is a biweekly newsletter on the safety of investments. This is not an investment advisory service, it is to monitor and explain the complex developments that affect the underlying safety of investments.

MICROQUOTE MicroQuote provides trading statistics and descriptive information on more than 40,000 stocks, bonds, and options. MicroQuote is updated daily, and historical prices, volumes, and dividends are available back to December 31, 1973.

CUSIP — Finds a ticker symbol or cusip number for a security.

EXAMIN — Lists descriptive data about an issue (i.e., Standard & Poors rating, shares outstanding, beta factor, latest bid, pricing and dividend history, Moody's rating, bond rate, yield, maturity date, or open interest).

MODATA(*)—Transfers data to your own microcomputer. Output is directed to a file which can be transfered via FILTRN.

MQUREP — Creates reports of stocks which pass through 19 predefined screens detecting abnormal price or volume movement.

PRICE(*)—Lists daily, weekly and monthly trading statistics or dividends for an issue. All listed prices and dividends are adjusted for stock splits and stock distributions.

QPORT—Provides a quick means of preparing your own portfolio valuation reports. The issue, number of units and acquisition cost per unit is entered.

QUICK QUOTE Quick quote provides high, low, closing, volume and net change figures on over 9,000 securities traded on the New York, American and over-the-counter stock exchanges, updated periodically during each trading day.

QUOTES(*) — Provides pricing information for a group of securities for a single date. Lists ticker symbol, close, volume, high, low, and cusip number.

STATS — Gives descriptive statistics on an issue over a specific time period. The high, low, close, high close, low close, volume, mean and standard deviation are reported.

MONEY MARKET SERVICES Money Market Services (MMS) is a multinational corporation specializing in financial and economic research. MMS provides a unique news bulletin each Friday containing information and forecasts focusing on the interest rate trends. CompuServe users can read Fedwatch four days in advance of the many recipients who receive their copy by mail.

RAYLUX REPORTS Raylux provides information in five categories:

Business Outlook — is a straightforward accounting of current economic trends.

Financial Commentary—is a flexible category, perhaps highlighting one particular investment area.

Stock Market Outlook — is a combination historic examination and preview look at the stock market, and its "bullish" or "bearish" state.

Securities Glossary — is a listing of well-known and lesser-known securities terms (i.e., "acceptance," "average debt," "maintenance," "book value") accompanied by detailed descriptions.

Industrial Outlook Model—A program for making projections on a 32K microcomputer system. The model represents information to consider when making personal financial decisions.

SMALL BUSINESS REPORTS Mark Stevens, a nationally syndicated columnist, author of numerous business related books and writer/producer of a nationally syndicated radio program provides a series of reports on the environment of today's small business. Mr. Stevens also provides on-line tips and services as well as a list of his publications that may be ordered and sent to you.

STANDARD & POOR'S GENERAL INFORMATION FILE The Standard & Poor's General Information File provides descriptive and financial information on more than 9,000 securities. You are provided a Business Summary which includes the corporate address, telephone number, list of directors, principal officers and stock transfer agents. You also get financial information that includes the latest available figures on net sales and net income, three years of earnings-per-share historical data, a five-year earnings-per-share growth rate and provides the current year's estimates when available.

Information can be retrieved by entering either the company name, ticker symbol or industry code.

VALUE LINE DATA BASE II The Value Line Data Base II provides current and historical data (from 1969 to present) that allows you to analyze the performance of 1,700 major industrial, transportation, utility, retail, banking and insurance companies. These companies represent 95% of the dollar value of all stocks traded on the exchanges.

For more information on financial products, contact the CompuServe Information Service Customer Service Department. In the continental U.S. call (800) 848-8990. In Alaska, Hawaii and Ohio, call (614) 457-8650. Or leave message via Feedback.

It's third down and six.

You call the play.

Football is here on CompuServe, and you're the coach. Punt? Pass? It's your decision. Pick your team, and call the plays. Watch as your players "march" confidently down the field... or get smothered by your opponents at their own five yard line. Send in the plays (at the touch of a button) and take the credit for that masterful scoring drive.

Ah, but watch the defense. A fumble here and an interception there, and you'll be carrying the water bucket again. Stiff competition? Of course! That's why your team's success depends on your armchair quarterbacking skill. (You *have* been practicing all season, haven't you?)

So, c'mon and play Football. Those Cowboys aren't so tough!

CompuServe

5000 Arlington Centre Boulevard
Columbus, Ohio 43220

To play Football select "Games and Entertainment" from the Home Services menu or type Go HOM-75.

Have You Looked Into PEM-1 Yet?

If you've got a question on electronics, PEM-1 has the answer.

It's the "electronic magazine" created by Popular Electronics that brings you a world of electronic intelligence and fun—all at the touch of a fingertip.

PEM-1 provides some of the same articles and features found in Popular Electronics; *subjects on the cutting edge of technology.*

Audio...Microcomputers... Video...Communications... Engineering...Home Electronics...Robotics...Test Equipment...Components... and much, much, more. Access to this special data base also gives you information on:

- What's new in hardware and software
- What companies are introducing in new products, how much they cost, and the phone numbers of manufacturers
- Club news, conventions, projects, what's going on with members

You Can Talk Back to PEM-1

The best part of this electronic magazine is the fact that it's interactive. Got a problem? Or a question about electronics? Punch it up, and someone in the PEM-1 network will respond. Or share your expertise by plugging into PEM-1's data base and pool your knowledge of electronics with the hundreds of Compuserve users.

Popular Electronics' Staff of Experts Put It on Line For You

Every night, Popular Electronics' veteran staff of experts, Art Salsberg, Stan Veit, Les Solomon, Joe Esposito and Carl Warren explore electronics with you on PEM-1.

Join them.

Popular Electronics

PEM-1

Look Into It

MEGAWARS

KRYONS AND COLONISTS BATTLE IN INTERACTIVE COMPUTER WAR

Designed for up to 10 players in each of four separate games, Megawars is accessed under main menu item 2 of Home Services. Players may enter and leave the game at will. You may enter an existing battle, or be the vanguard of one yet to begin . . .

For 700 years, the Kryons' cruel dictatorship has enslaved the Colonists. And for 700 years, the Colonists have fought valiantly for vindication. Today, on computer screens across the country, their battle continues to be enacted by hundreds of CompuServe Information Service subscribers through Megawars. The battle mission for Kryons and Colonists alike is to destroy all enemy bases and ships and to capture all enemy planets.

Entering the battle today is Stellar, one of the bravest and most experienced Colonist admirals. She accesses videotex page number HOM-60, enters Megawars, and selects the powerful flagship Vega for her trip into battle. As she launches her ship, Stellar uses her computer terminal to check information on enemy positions within her portion of the 75 by 75 sector grid.

Nearby, a first-time fighter cadet is also logging into battle. He chooses to become a Colonist, and launches his trainer ship the Scorpion.

The Vega contacts the Scorpion by sub-space radio and together they plot to capture a neutral planet on the other side of the great void, then build a Colonist starbase. As they communicate, Stellar propels the Vega steadily around the void while the faster Scorpion surges ahead to stake out the territory.

Then, seemingly out of nowhere, a nasty Acheron—natural enemy to Kryons and Colonists alike—attacks the Scorpion. With a torpedo shot from the Vega, the Acheron is quickly stilled. The two Colonist ships continue their journey, watching for dangerous black holes which spell certain death.

The Scorpion has used too much engine power, though, in its haste to escape from the Acheron, and engine trouble thwarts its progress. The ship must operate solely on the low-powered impulse engines while the stronger warp engines are repaired.

Horrors! An alliance of three Kryon ships is approaching the ailing Scorpion from 10 sectors to the right.

The Vega hurriedly docks with the Scorpion, then with the Scorpion in tow, surges out of range just in time to avoid a barrage of enemy fire. Before the Scorpion sets out on its own again, it is refortified by a transfer of power and torpedoes from Vega's arsenal.

Next, a miner ship, the Voyager, joins the Colonists' offensive. The Voyager refortifies itself with mines from the Vega's supply, then distributes the mines to form a barrier. Behind this barrier, the three Colonist ships stage an assault on the neutral planet.

The assault is successful, and all three Colonist ships land on their newly acquired turf. By a stroke of luck, they find that the Acheron stored his cloaking device on this planet. The device can make starships invisible when it is attached to their shields. The Vega stashes the device in its hold and the three ships re-enter space.

Soon, more enemy torpedo bursts. This time, they are coming from two Kryon scout ships which are protecting an enemy planet. The Vega shields itself with the Acheron's cloaking device and disappears from enemy computer screens. Now, excited commands crackle over the Vega's sub-space radio as Stellar mobilizes friendly forces for an attack on the hostile planet.

With two torpedo blasts, the Scorpion rebuffs the enemy scouts. But the two Kryon scouts reappear in attack formation, joined by three enemy fighters.

The three Colonist ships are outnumbered. But a quick torpedo blast from the invisible Vega turns a nearby star into a nova. The resulting conflagration destroys the enemy planet and all five enemy starships, bringing the Colonists' score to 800,000 points — a major victory over the Kryons' 325,000 points.

Yet the justice won by this victory is only temporary. As long as there are Kryons and Colonists, there are sure to be struggles for conquest.

For Stellar, this victory is occasion for a short respite from battle. She assumes her earthling identity of Stella and selects another CompuServe menu item to check her EMAIL deliveries.

But her starry-eyed look is testimony to the fact that time will only strengthen her resolve to destroy the Kryon forces.

by Kathy Baird

TRANSFERRING DATA FILES WITH VIDTEX™

Most of CompuServe's VIDTEX™ programs contain the ability to transfer a file from the microcomputer's disk to CompuServe. While this is a feature found in many other terminal programs, most of them merely transmit the contents of the file or write exactly what is received. VIDTEX uses an error free communications protocol to perform file transfer. This means that if noise occurs on the communications line, the error will be detected and corrected.

The procedure to perform a file transfer on CompuServe is relatively simple and is described below. A few terms must first be defined in order to explain file transfers. When a file is transfered from CompuServe to a microcomputer, the file is "downloaded." When a file is transferred from the microcomputer to CompuServe, the file is "uploaded." The CompuServe mainframe computer is referred to as the "host" computer system and your microcomputer is referred to as the "remote" computer.

There are three types of file transfers which can occur: text, binary, and machine specific. A text transfer is used to transfer ASCII text files such as untokenized BASIC programs and text files produced by word processing programs. When uploading a text file, VIDTEX translates from the remote computer's character representation to standard ASCII. This usually includes replacing space compression codes with strings of spaces and adding line feeds to carriage return. When a text file is downloaded, VIDTEX translates the text from standard ASCII to the microcomputer's character representation.

BIN Binary transfer
CMP Reserved for CompuServe
IMG Machine specific (image) transfer
TXT Test transfer

A binary transfer is used to transfer eight bit files such as tokenized BASIC programs and machine language programs. This can also be used to transfer most microcomputer's BASIC data files. VIDTEX does not alter any data during a binary file transfer.

A machine specific transfer is used to transfer machine dependent files. VIDTEX inserts all the information it needs to recreate the file exactly as it originally existed. If an attempt is made to download a machine specific file to a microcomputer which is of a different type than the microcomputer from which the file was uploaded, VIDTEX will issue a warning message. Machine specific transfers can be used to transfer files that have information kept outside of the file (usually in the disk directory) that is essential to the file (such as file type, record length).

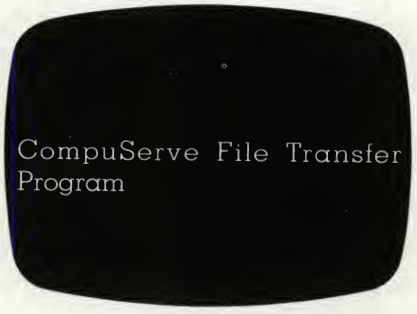
For both an upload and a download, the CompuServe file extension determines the type of transfer that will be performed. The valid extensions and the transfer types are:

If any other extension or no extension at all is used, a text transfer will be performed.

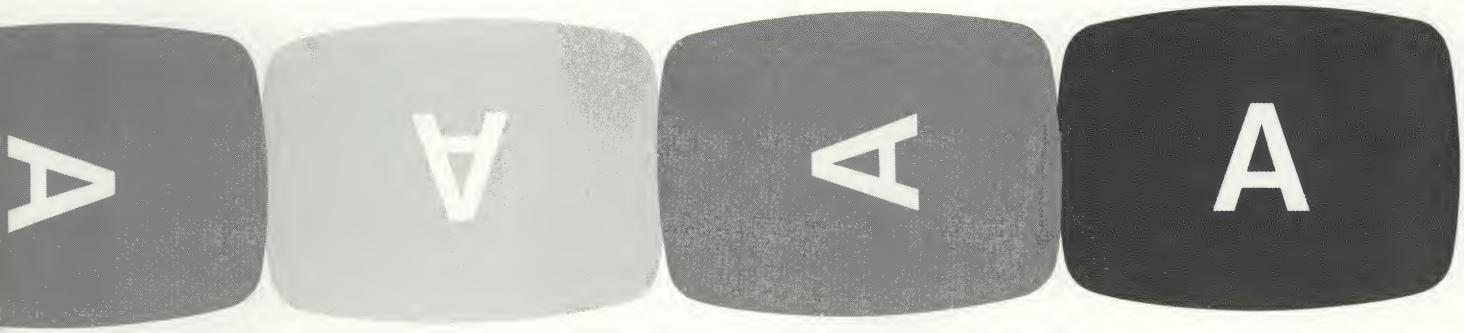
To initiate a file transfer, at the 'OK' prompt, enter:

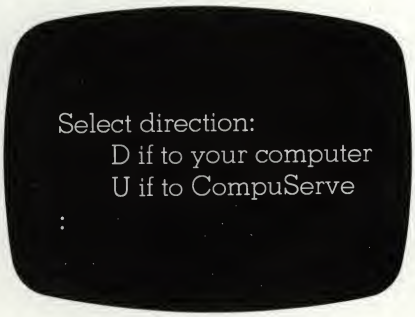
R FILTRN

CompuServe will then respond with:



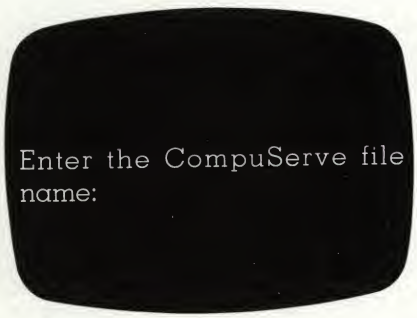
Your machine will then be interogated to see if you are running a version of VIDTEX which supports file transfers. If you are not running a VIDTEX program or if your version of VIDTEX does not support file transfers, an error message will be printed and you will be returned to the 'OK' prompt. If you are running a version of VIDTEX which supports file transfer, you will be asked for the direction of the transfer:



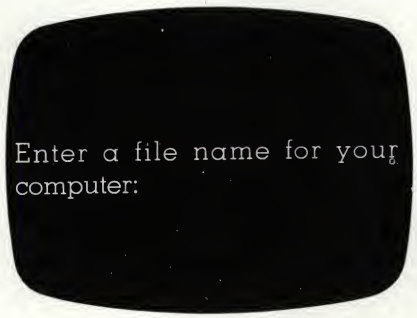


Enter a 'U' to transfer a file from your microcomputer to CompuServe (upload) or a 'D' to transfer a file from CompuServe to your microcomputer (download) at the ':' prompt.

You will then be prompted with:



Enter an appropriate file name and extension. Remember that the file extension determines the type of transfer performed. For a download this is the name of the existing file to be transfered to your microcomputer. For an upload this is the name of the file which will be created. You will then be prompted with:



Enter the file specification as required by your operating system. You may specify any file following the naming rules of your system. This might include a drive designation, a file name extension, punctuation, or a password. Since the format for file names is different for every microcomputer, no syntax checking is performed on the remote file name. The remote file name does not affect the type of transfer performed.

For an upload enter the name of the file to be transfered to CompuServe. For a download enter the name of the new file to be created. VIDTEX will not overwrite an existing file on a download; you must first delete the file yourself.

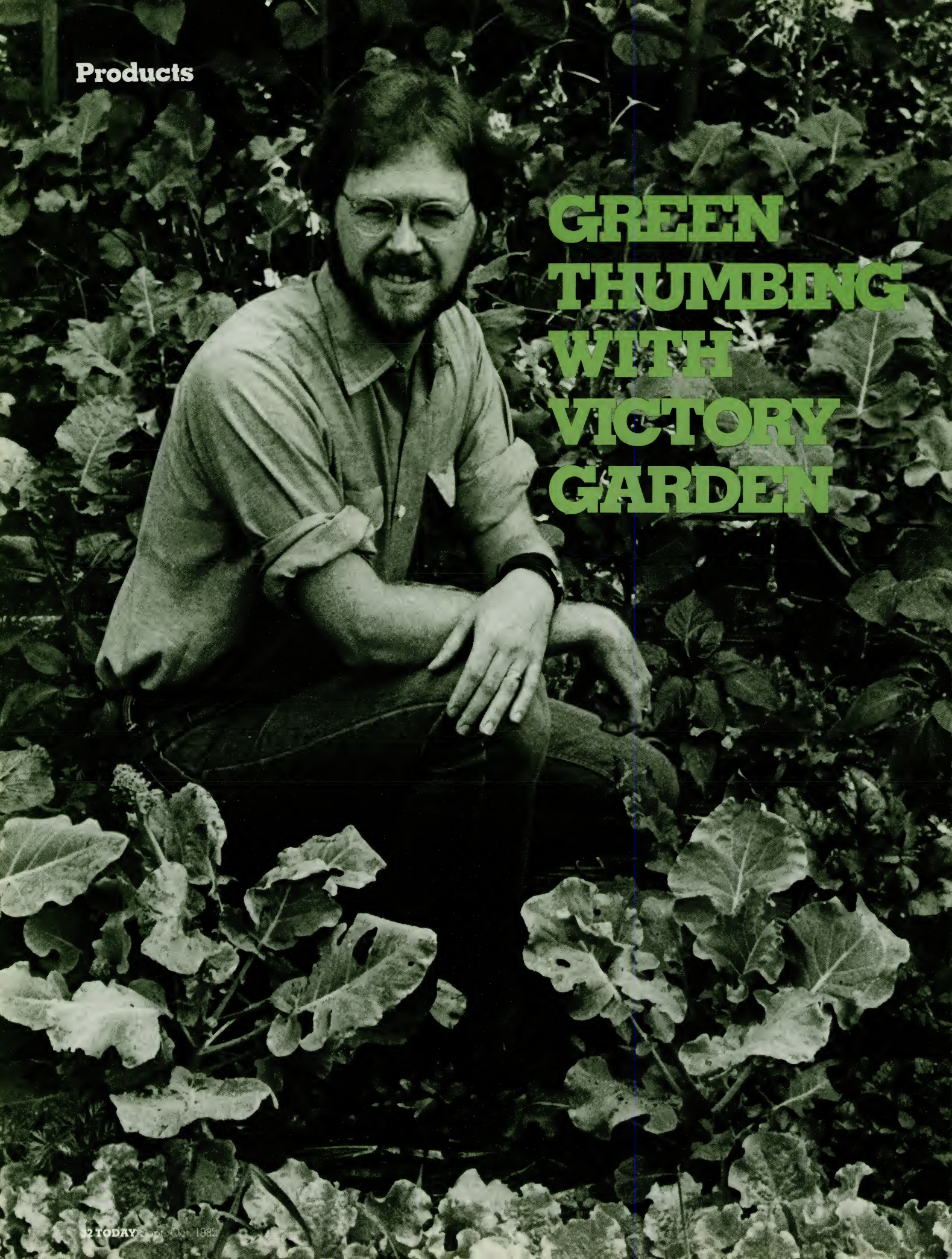
The file transfer will then begin. As the transfer proceeds, a series of digits will be displayed on your screen. On some versions of VIDTEX, plus signs (+) appear between the digits.

When the transfer is completed, the message:

will appear and you will be returned to the 'OK' prompt.

For more information on "VIDTEX" file transfer program, contact the CompuServe Information Service Customer Service Department. In the continental U.S. call (800) 848-8990. In Alaska, Hawaii and Ohio, call (614) 457-8650. Or leave message via Feedback.

GREEN THUMBING WITH VICTORY GARDEN



Ted Batutis, creator of the Victory Garden, is a graduate student in the vegetable crops department of Cornell University's agriculture school. His advice for novice agriculturists: "Start with a small garden."

There is something about a garden that's irresistible. Witness Peter Rabbit, who, when warned not to go into Mr. McGregor's garden, ventured amongst the cabbages and cucumbers anyway. Once there, he overindulged to the extent that he was almost unable to escape Mr. McGregor's wrath and later developed a stomach ache because of his excess. Yes, a garden *will* do that to you.

Perhaps, like Peter Rabbit, you're drawn by the lure of a garden filled with fresh vegetables just ripe for the picking. You may be thinking about starting a garden for economic reasons, or perhaps you just have the nurturing urge. Maybe, like World War II-era citizens who popularized Victory Gardens, you just want to do your part to feed your little corner of the world.

Whatever the rationale behind your garden, chances are you'll need help turning those reluctant seedlings into bountiful harvest. That's where the CompuServe Information Service (CIS) comes to the rescue with Victory Garden. Filled with helpful suggestions, information, and answers to important questions, Victory Garden has immediate solutions to your gardening problems ... just steps away from your home garden. Use its plentiful resources... and a green thumb victory will be yours.

Ted Batutis recently originated the concept for the service from his home base in Ithaca, N.Y., where he is a graduate student in the vegetable crops department of Cornell University's agricultural school. At Cornell, he works in the extension department, answering questions for home gardeners who call in concerning the growth—or lack thereof—of their crops.

"I realized that there are certain groups of questions that can be organized and answered fairly easily," says Batutis. "CompuServe was the ideal place for the service, because people can easily find the answers there." Batutis notes that he has access to a vegetable crop library containing up to 2,000 reference books and journals, and he receives assistance from the knowledgeable experts who work with him.

CIS customers will find Victory Garden information organized into such categories as, "Starting a Garden," "Individual Crops," "Trouble-Shooting," and "Green Thumb Questions and Answers." The service advises gardeners about a multitude of topics, and is updated as new research or information is available.

In the question-and-answer section, Victory Garden gives specific advice to a problem you might be having with a particularly troublesome plant, as well as general advice on problems that all gardeners encounter. On the problem of birds eating seeds, for example, Victory Garden suggests that frightening birds away with a stationary object such as a scarecrow is not nearly as effective as something that is bright, makes noise, and is constantly moving. CIS gardeners are advised to try an aluminum pan attached to a stick.

Batutis gives this counsel based on experience. His attraction to gardening began during childhood as he worked on the family's quarter-acre garden plot. He notes that the most important thing to know in gardening is when to harvest — at what point vegetables are mature and ready to be picked. Secondly, proper storage of vegetables is important to know.

Batutis's recommendations for beginning garderners? "Start with a small garden." Taking into account how much time one is willing to put into the garden, Batutis says the maximum size for a beginner should not exceed 10′ × 15′. Two to three hours a week should be sufficient time to spend on a simple garden.

"Don't be too ambitious," Batutis also warns. "Don't grow crops that are difficult, such as cauliflower and cabbage. Instead, stick to vegetables that grow themselves —tomatoes, radishes, spinach and lettuce."

Ah, lettuce. Be on the lookout for Peter Rabbit and friends.

by Patricia H. Carro

Jon Crispin

SOFTWARE CATALOG

The largest publisher of microcomputer software in the U.S., Lifeboat Associates, has joined with the Rair Computer Corporation to produce the first catalog of software for the "BlackBox" line of microsystems.

The new catalog, entitled "Rair Black Box Microcomputer/Lifeboat Associates Software 1982," includes descriptions of all packages currently available through Lifeboat. Software is available in 12 different areas, including: programming languages, word processing and data management systems, professional and office aids and telecommunications packages.

The catalog is available from the RAIR Computer Corporation, 4101 Burton Drive, Santa Clara, Calif. 95050.

BASIC SOCIETY

There is a new national IBM personal computerists group forming called "Basic Society." The group's objective is to improve the usage of IBM small systems through an open exchange of information on software and equipment. They are appealing to IBM users and support organizations for membership.

The annual membership fee is $25 and includes the monthly publication, "Basic Society News." The magazine will feature articles submitted by members of the group as well as technical system data, new product announcements, and operating tips.

The first issue will reach 15,000 s/23, s/34, 5120, personal computer and displaywriter owners.

For more information, contact: Basic Society, Drawer 345099, Dallas, Texas 75234.

COMPUTER POLLUTION CONTROL

Electrical pollution can drive your microprocessor crazy! Power line electrical noise often causes erratic computer operation. Lightning or fallout from the operation of heavy equipment may even damage expensive computer hardware.

What's a microprocessor owner to do? Now there is the Super Isolator to screen out undesirable electrical pollution. Developed by Electronic Specialists, the Super Isolator will control pollution for an 1875-watt load.

For more information about the $104.95 Super Isolator, write: Electronic Specialists, Inc., 171 South Main Street, P.O. Box 389, Natick, Mass. 01760

MICRO CONNECTION

The latest addition to the expanding line of Microconnection modems connects to the Osborn 1 computer, is compatible with the Bell 103, and can operate in both the originate and answer mode at 300 baud.

Applications for this new Microconnection (from the Microperipheral Corporation) are practically unlimited. It can interface the Osborne 1 with public telephone networks. That will offer access to other computers and systems such as CompuServe, public access bulletin boards and other time sharing systems. "Microlink" or other standard CP/M software can be used.

Another significant feature of the Microconnection provides for on-line data storage. An inexpensive, voice-grade cassette recorder can be plugged into the Microconnection. It will then transcribe on-line communications for later playback.

Weighing less than a pound, the Microconnection for the Osborne 1 computer is priced at $159. For additional information, contact: Microperipheral Corporation, 2643 151st Place N.E., Redmond, Wash. 98502.

COMMODORE INFORMATION NETWORK

The makers of the popular Commodore VIC 20 home computer have announced a new Commodore Information Network for VIC 20 users. The user-oriented telecommunications service will allow home computerists to get technical assistance, exchange programming tips, access new Commodore product information and even play games.

The new service can be accessed via the CompuServe Information Service (CIS). In fact, with the purchase of a Vicmodem cartridge, Commodore offers users a free one-year subscription to CompuServe and one hour of free time on CIS.

Users of the VIC 20 home computer can plug into the new service and the entire world of

telecommunications by using the Vicmodem cartridge and a modular telephone. The Vicmodem allows transmission of computer signals over telephone lines. VIC users simply insert the Vicmodem cartridge into their computer, plug their telephone handset cord into the modem and with the use of a Commodore Datassette recorder, they can begin telecommunicating. Also included with the Vicmodem is Victerm I software, which programs the VIC 20 for telecommunicating.

All computerists subscribing to CIS can get into the Commodore Information Network by selecting "CBM" when they sign on. Once on Commodore's network, they can select from a "user friendly" menu. If they become confused, users can just type in the word "help" to get the explanations they need.

Computerists who select "Commodore News" will find they can participate in a public electronic bulletin board where users post comments and questions. They also gain access to a wealth of information about Commodore products including: abstracts of articles from Commodore's user publications, information from and about Commodore user groups, a price list and announcements of new Commodore products.

For more information contact: Commodore Business Machines, Inc. — Computer Systems Division, The Meadows, 487 Devon Park Road, Wayne, Pa. 19087

NEW EPYX GAME

Just when you thought you'd seen all there was to see in computer games, Epyx introduces a challenging new strategy-action game called Alien Garden.

For use on the Atari 400/800 personal computer, Alien Garden combines the joystick action with arcade-style, full-color graphics and sound. The player hears the shattering and tinkling of crystals as they grow, shrink and explode before his eyes.

As a hungry alien, the player is challenged to survive in a world thriving with enticing crystal life forms. Some crystals are edible, while others explode, killing the alien. To gain the most points, the player must decide whether he wants to sting, avoid or eat each type of crystal. The faster he does, the more rapidly his score increases.

A wealth of crystals — up to 19 unique species — complicate the player's survival. Nine skill levels add to the challenge.

Alien Garden is available on ROM cartridge from: EPYX, P. O. Box 4247, Mountain View, Calif. 94040. Suggested retail price is $39.95.

85 MEGABYTE DISK DRIVE

Most die-hard home computerists can never get enough storage capacity in their systems. NEC Information Systems has introduced a new addition to the D2200 family of high-performance, eight-inch Winchester-type disk drives that provides 85 megabytes of storage capacity.

The NEC D2246 disk drive also has fast 25-millisecond average access time and interface/format compatibility with storage module device type controllers. This new model expands the capabilities of the D2200 series introduced by NEC in April of 1981. Models introduced at that time included the D2220 at 25.5 megabyte capacity, and the D2230 at 42.5 megabytes.

For more information, contact: NEC Information Systems, Inc., 5 Militia Drive, Lexington, Mass. 02173

MICRO MOONLIGHTER WRITERS' CONTEST

Want to win a personal computer?

Micro Moonlighter Newsletter is looking for a winning article which describes the "best use of a personal computer in a home-based cottage industry." Deadline for entries in the writing contest is Oct. 31. The top entry will be published in Micro Moonlighter. All entries received will be considered for possible future publication.

In addition to winning a personal computer, the winner will receive a choice of software valued to $500. To win, writers should concentrate on the following theme, as stated by publisher J. Norman Goode: "The business opportunity of the '80s is a cottage business with a personal computer at its center. There are many individuals and couples who have started a successful enterprise using the latest in technology, and we want to make our readers aware of these pioneers."

The winner will be announced on Nov. 22. All submissions should be made directly to the publisher: J. Norman Goode, Micro Moonlighter Newsletter, 2115 Bernard Avenue, Nashville, Tenn. 37212. Acknowledgement of receipt of material will be made if the entrant submits a self-addressed, stamped postcard with the entry.

WAGING WAR ON THE CUBE

Admit it. Your cube has finally defeated you. Try as you will, you can't arrange all the colors on their proper sides. Where you should have a tranquil field of green, you have a cavalry of colors. Where you should have 12 little squares of pristine white, you have a distressing array of orange, blue and red intruders. You conclude that the battle has been fought and your cube is the victor. Or is it?

CompuServe's Magic Cube Solver (found in the Games & Entertainment section under Home Services) comes to your rescue. It restores your faith in your ability to win the Battle of the Cube, because it gives you explicit instructions on turning your squares to achieve the desired color uniformity.

Here's how it works. You sit in front of your screen, cube in hand, and describe — at the prompting of the knowledgeable Solver — the present color condition of your cube.

By answering the series of prompts, you inventory for the Solver the colors of the center squares on the top, bottom, left, front, etc. of your cube.

The inventory process continues with the Solver asking you questions about the relationship among the six planes of the cube. For example, it will ask you to turn the whole cube so that the center square colored Green is in front and the center colored Red is on the top." For the front side what is the color of the upper left square?"

Now that you have fully described your cube, the Magic Cube Solver gives you explicit instructions for how to manipulate the 6 sides so as to match colors.

Now you've done it ... vanquished that quarrelsome cube. Best of all, only you ... and the anonymous Magic Cube Solver ... know how you did it!

by Patricia H. Carro

IF YOU THOUGHT LIQUID GREEN WAS THE GREEN PHOSPHOR ON YOUR DISPLAY,

THEN YOU'VE MISSED THE BUCKS.

No, Liquid Green is not the solution to eye fatigue at your CRT. It is the brightest, most efficient financial service available today. Through CompuServe, you now have access to Money Fund at Home. With CompuServe convenience, local access connection and transaction capabilities. Your own direct link to Liquid Green Trust, one of America's fastest growing money market funds.

A minimum of $1,000 opens a Liquid Green account. The fund's high money market yield compounds daily. You can call up a display of the portfolio current yield and investments. See for yourself. No matter what color your screen is, don't miss the bucks any longer . . .

Money Fund at Home. With the speed and certainty of Electronic Funds Transfer (EFT). Keep earning interest until actual due date of fund transfers. Your entire investment earns high yields until transferred. From Unified Management Corporation — financial services of the future here today.

Liquid Green Trust offers

- Safety, liquidity, high yield advantage
- Balance inquiry and transaction capabilities of CompuServe
- Income earned, updated daily
- FREE money transfer between Liquid Green and your local bank checking account via CompuServe for $100 or more
- Free checkwriting for $300 or more

For more information:
On CompuServe, try "GO UMC" for a demonstration • On CompuServe, send EMAIL to 70001, 1061 • Call Liquid Green TOLL FREE 800-428-4492

For more complete information, including management fee charges and expenses, obtain a prospectus. Read it carefully before you invest or send money.

Mail to: Liquid Green Trust, Guaranty Building, Indianapolis, IN 46204

Name _____

Address _____

City_____ State_____ Zip_____

Business Phone_____ Home Phone_____

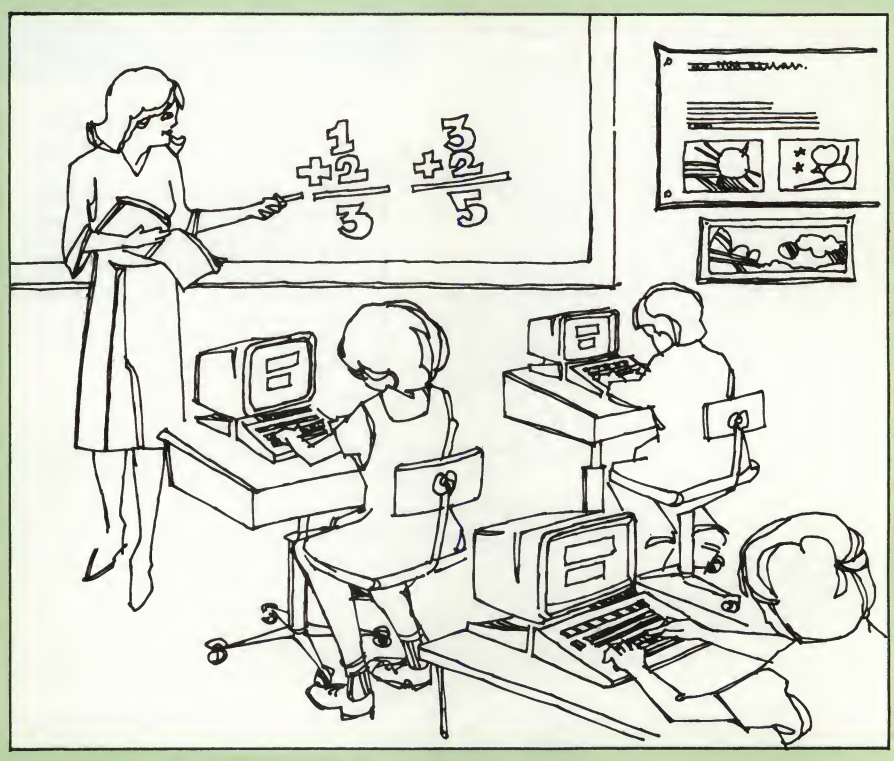
UNIFIED MANAGEMENT CORPORATION
Guaranty Building Indianapolis, IN 46204

C O N U N D R U M

by Mary Vaughn

JUMBLE
Rearrange each set of scrambled letters to form a simple word. Using the boxed letters from each word, answer the jumble question by forming a three word sentence.

1. T A A C N O V I _ _ □ _ _ _ □ _
2. R H I G P S C A _ _ □ _ _ _ _ □
3. E A W M R G S A □ _ _ _ □ _ _ _
4. O A S F R E W T _ □ _ _ _ _ _ _
5. A I M Y L F _ _ □ _ □ _
6. U U T R E F _ □ _ _ _ □
7. G E N A G R I N D _ _ _ □ □ _ _ _ _
8. O B I S H Y S T B _ _ _ _ □ _ _ □ _



9. Now arrange the letters contained within the squares to form the Solution.

Clue for Solution: "What the teacher said at the beginning of math class"

9. □ □ □ □ □ □ □ □ □ □ □ □ □ - □ □ □

See page 42 for solution.

Adventure

GET ALL THE TRAPPINGS

Trapped in Colossal Cave? Egad! But wait! There is a ray of hope: If you can remain alert and avoid the wrath of the Dragon, you will get out alive — maybe.

As you pull your genuine Adventure t-shirt against the damp chill of the Cave, you wisely decide to keep awake and alert by putting together the challenging, full-color 500-piece Adventure jigsaw puzzle.

Hours later, as your lantern begins to dim, the last piece falls into place. You hear the Dragon snoring in his den and quickly whip out your Adventure350 and Adventure750 maps to plot an escape route.

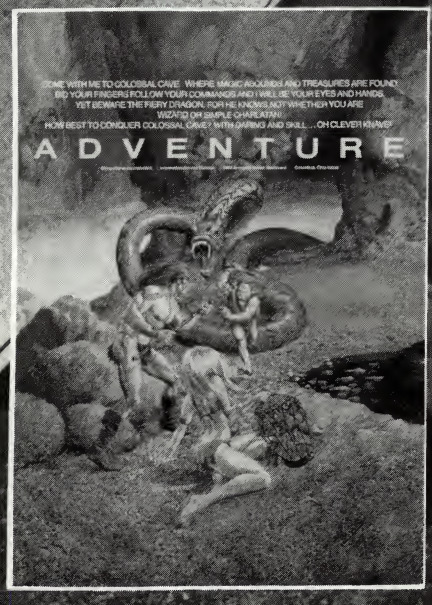
Following the maps, you tiptoe past the dragon and into the gleaming light of the Upper World. Tucked under your arm is a colorful Adventure poster — a souvenir of a most Adventurous day.

But what was that noise? The Dragon laughs. The only reason he spared your life was because you were wearing an Adventure t-shirt!

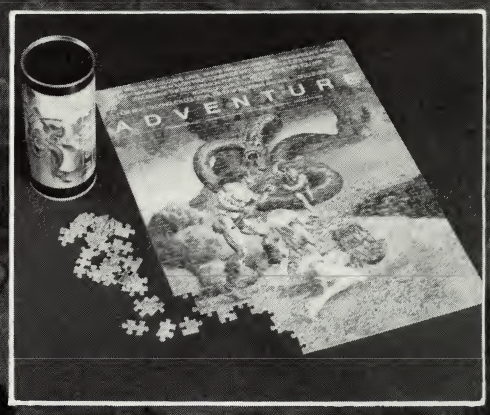
The Adventure t-shirt — S,M,L children's sizes; S,M,L,XL, adult sizes; Available in light blue, red, tan, yellow, black and kelly green. **$8.95**

Adventure350 Map — Conducts players through Adventure game maze. Not guaranteed to bring success in video version. Black ink on white paper. Size 17x25". **$2.95**

Adventure751 Map — Advanced version for Adventure aficionados; size 23x35". Black ink on parchment. **$4.98**



Full Color Adventure Poster — Provides Adventure inspiration to even the most travel-weary explorers. Size 18x24". **$5.95**



Full-color Adventure Puzzle — Features 500 interlocking pieces depicting an Adventure game confrontation between explorers and the fiery Dragon. Finished puzzle size is 16x20". **$8.95**

To order your Adventure items, send a message via Feedback (main menu item 5, user information). Please allow 4-5 weeks for delivery.

COMPUSERVE FEATURED AT CHILDREN'S MUSEUM

Communications, computers and CompuServe are all topics highlighted in a new Communication wing at the Capital Children's Museum in Washington, D.C.

For families of computer enthusiasts who plan to visit the nation's capital in the near future, the exhibit should be a high-priority stop.

The Communication wing, which opened in November, 1981, gives visitors from children to congressmen a chance to work with communications devices from the past and the present with an eye on the future. Visitors to the 10,000-

CompuServe

CompuServe is a computer network, a central computer which links together individual computer owners by telephone, cable or satellite. For a small fee, people who subscribe to CompuServe can send mail, get news or play games via computer. They can read from the pages of the Los Angeles Times, the New York Times, the Washington Post or the Associated Press. Messages sent from one person on the network can easily be displayed on a computer screen thousands of miles away, just seconds after the information is typed in. Messages can also be stored and displayed hours or days later. This is called "electronic mail".

Someday, most people will subscribe to computer networks as we now subscribe to newspapers or cable TV. Computer networks may revolutionize our lives more than the automobile.

square-foot exhibit have an opportunity to learn about cave art by visiting a replica of a 30,000-year-old cave. They can closely observe how a modern communications satellite operates, use a model of an 18th century printing press, make their own filmstrips, visit a radio studio, and send messages by Morse code or African drum.

The children can play the "Adventure" game on the CompuServe Information Service, while Mom and Dad catch up on the day's news by reading any of the newspapers also available on CompuServe.

If someone is celebrating a birthday, the whole family will want to schedule a party in tomorrow's classroom called Future Center. Instead of playing the usual party games, up to 20 party guests can entertain themselves by using individual microcomputers in a futuristic classroom setting. A musical rendition of "Happy Birthday" played by computer will top off the celebration.

Computers are used throughout the entire museum in three different ways. Some enhance exhibits by explaining or teaching a particular concept. For instance, the computer game "Centimeter Eater" augments the impact of a metric system display by inviting visitors to guess the metric measurements of different lines. It then checks their answers by demonstrating whether the lines can actually be "swallowed" by a "Pac-man"-like worm on the computer screen.

Other computers are used to depict the capabilities of computers themselves. For instance, a display featuring the CompuServe Information Service demonstrates how computers may be used to meet home communications needs.

Turn your TV into a time-sharing videotex display for $399.*

Now you can connect your family to the informative and entertaining world of CompuServe, The Source, Dow Jones News/Retrieval and other time-sharing and data-base networks.

All you need is the RCA VP-3501 Videotex Data Terminal (with built-in modem and RF modulator), your telephone and your TV set. You can get instant access to regional newspapers and newsletters...weather reports and sports results...computer games and more. You can use the VP-3501 to make airline reservations...find restaurant recommendations in cities around the world. Plus stock market and corporate data. Or access your school or business computer. You can even send electronic mail and buy products.

In addition to information retrieval, the VP-3501 provides full interactive communications with a host computer. What you have working for you is a versatile, feature-packed interactive data terminal which can be worth far more to you than its low price. Its unique color-locking circuitry gives you sharp color graphics and rainbow-free characters. You get 20- and 40- character formats in one of eight foreground colors and separate color backgrounds.

With reverse video, you can emphasize certain letters, words, or sentences. A built-in tone generator...plus a white noise generator...let you create everything from the sound of explosions to the sound of music. The spill-proof, easy-to-clean keyboard is highly suitable for hostile environments. And its membrane key switches give you a natural feel.

The VP-3501 is truly a fine Videotex Data Terminal. And don't forget, it's made by RCA...the first name in television...now the foremost name in videotex terminals.

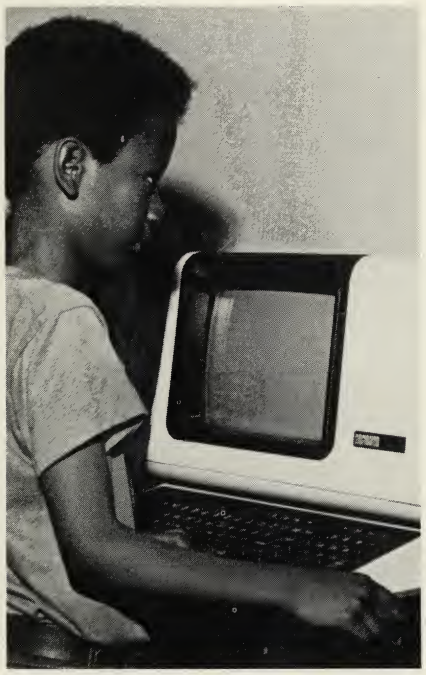
See a demonstration at your computer or electronics dealer, or contact RCA. Order now and you'll get a free password and a free hour's time-sharing on both CompuServe and Dow Jones News/Retrieval! (Limited time offer.)

For more information or to order, call toll-free. 800-233-0094. (In Pennsylvania, call 717-393-0446.) Visa or MasterCard orders accepted by phone. Or send a check including $3.00 delivery charge plus your local sales tax to RCA MicroComputer Products, New Holland Avenue, Lancaster, PA 17604.

*Suggested User Price.

PRIME TIME-SHARING

RCA



Still other computers are used to teach computer programming. In tomorrow's classroom, Future Center, the basics of computer programming are taught to children as young as three years old, with other classes serving all age groups from kindergarten through adult.

Since about 60 percent of visitors to the museum are children, bright lights, smells, tastes and games are used frequently throughout the museum to capture their interest. Visitors receive hands-on experience to help them learn by participation.

"The hallmark of this place is you get to *do* every exhibit," said Peter Hirshberg, curator of the "Communication" wing. "Learning by doing is particularly important in the information age," he explained. Many museums of the past used displays which could be understood by simply being seen. However, a computer or a service such as CompuServe must be used to be appreciated.

"CompuServe is a synthesis of the last 100 years of mail, of newspapers, of communications, and is meaningless if only perceived as a piece of hardware," Hirshberg said. "The best way to learn about it is to use it."

"Visitors use CompuServe in a setting which shows the range of information in our society," Hirshberg explained.

In the Communication wing's "Hall of Information," a wall mural depicts an information-rich environment in which a colorful assortment of people and animals are using modern communications devices. The mural characters peer down at the CompuServe display. To one side of that display are teletext machines which provide information on a television-like screen, and to the other side is the Gannett Wire Service, which provides a printout of the latest news on a modern news printer.

After visitors observe the wire machine and use the teletext system, they are shown how CompuServe goes beyond the capabilities of either of the other systems.

CompuServe is one of the major corporate donors to the museum's Communication wing. "We provided them all connect time that they need to demonstrate our information service at the museum," explained Mike Ward, sales supervisor of industry marketing for CompuServe.

"The computer is a communications tool that is more profound than a telephone or a car and in order to make people aware of it, CompuServe plays an important role," Hirshberg said.

"The world is changing terribly rapidly and CompuServe and its sister services are at the experimental beginning of things," Hirshberg explained. "It is important that we present the computer to kids to show that it is a personal communications tool as well as a game tool and a computation tool," he added.

Visitors are impressed with CompuServe. "The notion that this computer has access to this much information that is located in another city is very interesting to these people," Hirshberg said.

Museum visitors who have used CompuServe in recent months have included: Caspar Weinberger, Secretary of Defense; Warren Burger, Chief Justice of the Supreme Court; Tim Wirth, chairman of the House Communications Committee; Mark Fowler, Federal Communications Commission Commissioner, and about 40 members of congress.

Through the CompuServe display, children learn that home computers are friendly and easy to use. That same lesson is highlighted for parents, who see that the CompuServe Information Service is simple enough for children to use.

To many adults, the use of computers may not yet be "child's play." But after visiting the Capital Children's Museum, some young visitors are convinced that it is.

by Kathy Baird

CONUNDRUM SOLUTION
from pg. 38

1. VACATION
2. GRAPHICS
3. MEGAWARS
4. SOFTWARE
5. FAMILY
6. FUTURE
7. GARDENING
8. HOBBYISTS

ANSWER: "Welcome to Sum-Day"

VIDEOTEX

continued from pg. 6.

development of most of the systems software — as well as the applications software for CompuServe Information Services (CIS). He says the development of computer graphics will continue to be a high priority. "It ranks right after the development and expansion of our communications network as far as long-term planning goes," Trevor reports. "At the moment, because of the limitations in most people's home computers as far as resolution and other factors, we can't possibly produce the kind of graphics that will be possible in a few years as the quality of hardware improves. More people will have the ability in the workplace and at home to display high quality graphics. It's going to be essential that we have many, many more products in graphic form."

by Carole Houze Gerber

INTEREST

continued from pg. 21.

means to pay most bills and the ability to send messages by electronic mail.

Two years ago, customers of United American Bank needed to use a TRS-80 color computer; today any microcomputer can be used. After entering the CompuServe code number, CIS subscribers, who are also United American Bank customers, enter another four digit code number to gain access to their personal bank records.

Customers can then view an electronic statement of all their bank transactions or perhaps get the latest investment and money management information. Rates are continuously updated so customers are on top of current investment opportunities.

Express Tel-a-Pay allows customers to pay their bills to more than 265 area mechants participating in the program. Without having to use checks or stamps, the customer merely enters the amount to be paid, to whom and when. That means payment can be entered the day the bill arrives, but transfer of the funds will be done on any day the customer selects, allowing his money to earn the most interest possible.

User information is also offered, keeping the customer up-to-date on the latest banking services and new programs. A list of basic commands helps users understand how to take advantage of the Bank-at-Home system.

Currently over 450 customers of United American Bank use the system, most of whom are private individuals, with corporate customers accounting for only a small percentage of the total users. United American Bank officials say Bank-at-Home has been a successful venture for both the customers and the bank. The feedback the bank has received through electronic mail has been most beneficial and has actually led to various changes and improvements in the Bank-at-Home service.

At-home banking may seem like computer wizardry to some, allowing each person to be his own bank teller. But electronic delivery of banking information is the way of the future, for it offers the customer convenience, accurate up-to-date information and the opportunity to make quick transactions and investments. The long wait in line on Saturday morning at the branch bank or in the drive-in window may be a thing of the past as electronic banking services become part of the present.

by Cathryn Conroy

2001

continued from pg. 17

center for added convenience. All alterations, before being graphically implemented, have been checked internally by the computer for architectural considerations.

When the Sousa children return from the recreation chamber, they eagerly examine the new home plans. It's not long, though, before Jerry Sousa is clamoring for a game of "Chatzilliman." This requires the use of additional screens in the media room. Within seconds, the Sousa family is surrounded on all sides by screens running from floor to ceiling.

Chatzilliman, a game of computer hide and seek, begins in the darkened room. Lia is "it." Her computer figure, "Chatz," is colored in red on the huge #3 screen; other family members are represented by their own striped figures, which may hide anywhere on any of the screens. Figures may build their own obstacles to hide behind; if these structures are erected fast enough, "Chatz" has no hope of catching them. Chatzilliman is a favorite of the Sousa family, because it's a game of fast action, creative thinking, and split-second timing. It was created during the Golden Age of Computer Graphics, at the close of the 20th Century.

After an hours' time, Lia's "Chatz" has tagged all the family members' computer figures on the screen, and she is declared the winner for the evening. Jerry protests illegal use of graphics, but is voted down. And the Sousa parents vote that it's the childrens' bedtime.

"A bedtime story?" asks Jerry. As his mother reads the tale of Little Red Riding Hood, Jerry is busy drawing the action on his computerized sketch pad ...

by Patricia H. Carro.

"THE LAST ONE"

"THE LAST ONE" is a program writer producing programs in BASIC on a range of popular microcomputers, using your own rough program design, with a "flowchart" as its starting point.

And it can do the job in so short a time that alterations to specifications, changes in file structure, or the addition of new hardware makes complete program rewrites a simple job that can be performed by almost anyone ... on the spot.

"THE LAST ONE" is used in conjunction with your usual resident BASIC. Yet no knowledge of BASIC programming is required, since your input is performed using question and answer routines in plain English.

The only BASIC listing you will ever see will be the finished up-and-running program, and you don't really even need to look at that.

Naturally, the programs, once created, are independent of "THE LAST ONE," just as your own current programs should be independent of you.

In order to find our more about "THE LAST ONE," send for a free descriptive brochure from KROWN COMPUTING, Box 66763, Scotts Valley, Calif. 95066

The Scott Adams Adventure Series
AN OVERVIEW

I stood at the bottom of a deep chasm. Cool air sliding down the sides of the crevasse hit waves of heat rising from a stream of bubbling lava and formed a mist over the sluggish flow. Through the swirling clouds I caught glimpses of two ledges high above me: one was bricked, the other appeared to lead to the throne room I had been seeking.

A blast of fresh air cleared the mist near my feet and like a single gravestone a broken sign appeared momentarily. A dull gleam of gold showed at the base of the sign before being swallowed up by the fog again. From the distance came the angry buzz of the killer bees. Could I avoid their lethal stings as I had managed to escape the wrath of the dragon? Reading the sign might give me a clue to the dangers of this pit.

I approached the sign slowly.

And so it goes, hour after hour, as you guide your microcomputer through the Adventures of Scott Adams in an effort to amass treasures within the worlds of his imagination.

By definition, an adventure is a dangerous or risky undertaking; a novel, exciting, or otherwise remarkable event or experience. On your personal computer, Adventure is that and more.

For the user, playing Adventure is a dangerous or risky undertaking in that you better be prepared to spend many addictive hours at the keyboard. If you like challenges, surprises, humor and being transported to other worlds, these are the games for you. If you dislike being forced to use your common sense and imagination, or you frustrate easily, try them anyway.

In beginning any Adventure, you will find yourself in a specific location: a forest, on board a small spaceship, outside a fun house, in the briefing room of a nuclear plant, in a desert, etc.

By using two-word commands you move from location to location, manipulate objects that you find in the different places, and perform actions as if you were really there. The object of a game is to amass treasure for points or accomplish some other goal. Successfully completing a game, however, is far easier to state than achieve. In many cases you will find a treasure but be unable to take it until you are carrying the right combination of objects you find in the various locations.

How do you know which objects you need? Trial and error, logic and imagination. Each time you try some action, you learn a little more about the game. Which brings us to the term "game" again. While called games, Adventures are actually puzzles because you have to discover which way the pieces (actions, manipulations, use of magic words, etc.) fit together in order to gather your treasures or accomplish the mission. Like a puzzle, there are a number of ways to fit the pieces together; players who have found and stored all the treasures (there are 13) of Adventure #1 may have done so in different ways.

In finding how the pieces fit, you will be forced to deal with unexpected events, apparent dead ends and Scott's humor, which is one of the best parts of the puzzles.

If you run into a barrier like not being able to discover more rooms, don't give up. Play the game with some friends; sometimes they'll think of things you haven't tried.

While I pondered how to reach the throne room — which I was sure contained the treasures of Croesus — the fog grew thicker and the hours passed. I realized I would not be able to outwit Adams today...but maybe tomorrow. I marked my present location on my tattered map and began the long trip to the surface. As I dragged myself off to bed, I thought about other possible Adventures.

But enough for tonight. Tomorrow — another crack at the chasm. —by Ken Mazur

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1050 Commonwealth Ave., Boston, Mass. 02215

The 12 Scott Adams Adventures ~19

Adventureland • Pirate Adventure • Mission Impossible • Voodoo Castle • The Count • Strange Odyssey • Mystery Fun House • Pyramid of Doom • Ghost Town • Savage Island-Part 1 • Savage Island-Part 2 • Golden Voyage

WHO ARE YOU THIS TIME?

Are you the seeker of lost treasures in an enchanted realm of magical beings? Perhaps you're an astronaut, thousands of light years from earth, searching the galaxy's rim for the fabulous treasures and advanced technologies of a long-dead civilization. Maybe you're the plunderer of ancient pyramids in a maddeningly dangerous land of crumbling ruins. and trackless desert wastes.

Imagine.

You wish to soar to other worlds, to behold wonders never beheld by mortal eyes, to dream unrestrained to the furthest limits of your imagination.

Imagine now that you can.

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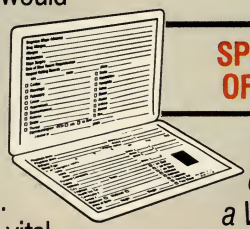

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